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**THESIS**

**An Analysis of Enlisted Navy Recruiter Productivity  
and Incentive Programs, FY 1988 - FY 1990**

by

**Lisa C. Barfield**

**September, 1993**

**Thesis Advisor:**

**David R. Henderson**

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**An Analysis of Enlisted Navy Recruiter Productivity  
and Incentive Programs, FY 1988 - FY 1990**

by

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Lieutenant, United States Navy  
B.S., Oregon State University, 1983

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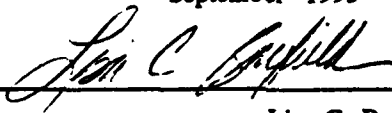
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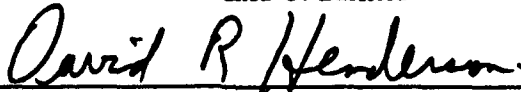
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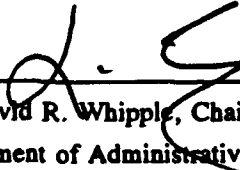
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## ABSTRACT

This thesis analyzes the productivity of enlisted Navy recruiters for the time period FY 1988 - FY 1990. The objectives of this thesis are to examine: (1) productivity by geographic area, (2) productivity with respect to the racial/ethnic background of the recruiter and the individual recruited, (3) productivity by gender of recruiter and gender of recruit, and (4) recruiter productivity under two separate incentive program eras. Descriptive statistics are used to show the actual productivity differences, followed by multivariate regression analysis to examine specific effects of gender, ethnicity and geographic location on recruiter production. Bivariate analysis is employed to compare the differences in recruiter productivity between the two incentive program eras. The results show that, with respect to ethnic background, recruiters are significantly more productive when recruiting individuals like themselves than when recruiting individuals of a different ethnicity. Females were found to be more productive than males when recruiting females and geographically, the southwest area of the country was most often significantly more productive than other areas. The thesis provides recommendations to assist Navy Recruiting Command in the assignment of the most effective and productive recruiters to the field in response to possible changes in specific goal requirements. Further study with current, detailed goal information is needed to assess the impact of incentive programs on recruiting and to examine the trends that should now be established with the current incentive programs.

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## **I. INTRODUCTION**

### **A. BACKGROUND**

The purpose of this thesis is to examine the productivity of enlisted navy recruiters for Fiscal Year (FY) 1988 through 1990. With the current drawdown facing the Navy and the need for fewer recruits, the recruiters who are responsible for contracting these recruits must be the most productive individuals that the Navy can assign. This thesis will examine the productivity of recruiters geographically with respect to ethnicity and gender, in addition to productivity differences under the different incentive programs during FY 88 - FY 90, to provide some recommendations regarding the assignment of personnel to recruiting duty.

### **B. OBJECTIVE**

In this era of downsizing budgets and personnel, recruiting the technical force required of today's Navy is of paramount importance. As the number of recruits needed is reduced, there is a need for increased quality of enlistees and a requirement for assignment of the most effective and productive recruiters to recruiting duty. Analyzing the underlying factors of recruiter productivity will assist in making the decisions that govern Navy recruiter manning at the appropriate level and mix of personnel.



In the coming years, the Navy's pool of potential enlistees, primarily 17 to 21 year old males, is expected to decrease as the youth population declines and civilian wages increase relative to military wages. In order to meet future recruiting objectives, the Navy must manage the limited recruiter assets as effectively and efficiently as possible.

The objective of this study is to analyze recruiter productivity and incentive programs to provide Commander, Navy Recruiting Command (CNRC) with information necessary to successfully recruit the number and quality of individuals required and to effectively utilize Navy recruiting resources.

#### **C. RESEARCH QUESTIONS**

The questions examined in this study are presented below:

1. Are recruiters more productive when recruiting individuals of the same ethnicity? Which type of recruiters are more productive when recruiting individuals of a different ethnicity?
2. Are recruiters more productive when recruiting of the same gender?
3. How has the productivity of recruiters changed under different incentive programs?
4. How has productivity differed geographically?

#### **D. SCOPE**

This thesis analyzes data provided by CNRC and consists of recruiter and contract information for the period FY 88-90.

The Navy's desired target for recruits is males of above average ability as determined by the Armed Forces Qualification Test (AFQT) and those that are High School Diploma Graduates (HSDG). To examine recruiter productivity, this analysis concentrated on individuals recruited as HSDGs and as high school seniors, most of whom graduated high school prior to reporting to basic training.

An assumption made in this analysis is that the goals assigned to the recruiting field activities account for the different economic and demographic conditions, and thus, that productivity between Navy Recruiting Areas (NRA) and Navy Recruiting Districts (NRD) can be compared at their respective levels.

#### **E. ORGANIZATION OF STUDY**

Following this introduction is a discussion of the command structure of Navy recruiting, which includes a description of the quality and type of recruits and the recruiters assigned to recruiting duties. A historical presentation of the incentive programs used by Navy recruiting is also provided.

Chapter III provides a literature review of the pertinent literature on Navy recruiting with respect to productivity and incentive programs.

This chapter is followed by a discussion of the data provided and the methodology used in this study to analyze recruiter productivity and incentive program performance.

Chapter V presents the analysis and results gained from the study of the data provided.

Chapter VI details conclusions and recommendations. These are provided in an effort to give CNRC further information to assist in the assignment of recruiters to field activities. These conclusions identify the type of recruiter that has been most productive in recruiting specific individuals during the FY 88 - 90 time period so that recruiting resources can be utilized to the utmost extent possible.

## **II. BACKGROUND**

### **A. NAVY RECRUITING**

The Navy recruiting process can be thought of in three dimensions: the recruiting areas and districts or the command structure, the quality and type of recruits needed to fulfill the Navy's mission, and the recruiters [Ref. 1]. Each of these dimensions is discussed below.

#### **1. Command Structure**

Navy recruiting is led by Commander, Navy Recruiting Command (CNRC), which is located in Arlington, Virginia. CNRC is responsible for the management of recruiting, development of policies, and general overview of any and all recruiting issues that pertain to Navy recruiting.

The next level of recruiting is the Navy Recruiting Area (NRA). NRAs are usually commanded by Navy Captains who have a proven record within Navy recruiting. During the time period of analysis of this thesis, there were six NRAs. Since that time, due to management consolidation, there are currently five NRAs.

These NRAs are responsible for the operation and administration of Navy Recruiting Districts (NRD) within their geographic area. A list of NRAs, NRDs, and the numerical code assigned to each NRD are presented in Appendix A. NRDs,

during the time period of analysis, numbered forty-one; currently there are only thirty-five NRDs in CNRC.

Within each NRD, geographic regions are broken into recruiting zones managed by zone supervisors, usually senior enlisted personnel (E7 or E8). These zone supervisors each have several years of experience at different levels of Navy recruiting. Each zone is comprised of Navy Recruiting Stations (NRS) that are manned by individual recruiters.

## **2. Quality and Type of Recruits**

CNRC has done extensive market research to determine what type of recruits should be recruited, in what quantity and quality, and where, geographically, those recruits should come from.

Indicators of recruit quality are education status and Armed Forces Qualification Test (AFQT) category. Education status is defined in two broad categories: High School Diploma Graduates (HSDG) and Non-High School Diploma Graduates (NHSDG). AFQT categories are defined by the percentile score attained on the combination of four of the ten subtests from the Armed Services Vocational Aptitude Battery (ASVAB). These four subtests are: Word Knowledge, Paragraph Comprehension, Arithmetic Reasoning, and Numerical Operations. The scores form six AFQT categories: Category I and Category II individuals are above average and score in the 65th to 100th percentile; Category IIIA individuals are average and score in

the 50th to 64th percentile; Category IIIB and Category IV individuals are below average and score in the 10th to 49th percentile; and Category V individuals score below the 10th percentile, are distinctly below average, and are not normally considered for enlistment. Individuals who score in AFQT categories I, II, or IIIA are designated as Upper Mental Group (UMG) and those who score in categories IIIB, IV, or V are classified as Lower Mental Group (LMG).

When combining education status and AFQT category, recruit quality cells are developed. These cells are defined as A-cell, B-cell, C Upper-cell (CU), C Lower-cell (CL), and D-cell. The AFQT categories, quality cells and mental groups for HSDG individuals are presented in Table 1. The same information is displayed for NHSDG individuals in Table 2.

**TABLE 1. HSDG AFQT SCORE, AFQT CATEGORY, QUALITY CELLS, AND MENTAL GROUP**

Education level: HSDG			
AFQT score	AFQT Category	Quality Cell	Mental Group
93-100	I	A	UMG
65-92	II	A	UMG
50-64	IIIA	A	UMG
31-49	IIIB	CU	LMG
10-30	IV	CL	LMG
1-9	V	CL	LMG

Source: Information compiled by the author from Indicators of Navy Recruiting Success by Timothy Cooke, CNA. 1987.

**TABLE 2. NHSDG AFQT SCORE, AFQT CATEGORY, QUALITY CELL, AND MENTAL GROUP**

Education Level: NHSDG			
AFQT Score	AFQT Category	Quality Cell	Mental Group
93-100	I	B	UMG
65-92	II	B	UMG
50-64	IIIA	B	UMG
31-49	IIIB	D	LMG
10-30	IV	D	LMG
1-9	V	D	LMG

Source: Information compiled by the author from Indicators of Navy Recruiting Success by Timothy Cooke, CNA. 1987.

The goals of Navy recruiting are specified to the entire nation by a yearly CNRC notice delineating Active Duty Enlisted Recruiting Goals and Policies [Ref. 2]. The main target in the market is the Non-prior service (NPS) male in AFQT category I-IIIA and in quality cell A. Accessions of quality cell CU and B individuals are allowed but only in smaller numbers.

For example, in FY 89, CNRC required 58.4 percent of NPS male accessions to be in AFQT categories I-IIIA. Another requirement was that 89.5 percent of male accessions be HSDGs. B-cell individuals were restricted to not more than 10 percent of the total males recruited into the Delayed Enlistment

Program<sup>1</sup> (DEP) in any month that DEP recruiting was authorized [Ref 2:p. 3].

### **3. Recruiters**

Navy enlisted recruiters can be categorized into three broad categories: production recruiters, supervisory recruiters, and specialized program recruiters. Production recruiters are those recruiters whose primary duty is to enlist new recruits. These recruiters work within the NRS and contribute to the assigned mission or monthly goal of that NRS. Supervisory recruiters are those recruiters who are not normally on production, but who manage other recruiters. These recruiters fill NRD Chief Recruiter positions, zone supervisor billets, and Recruiter-in-Charge positions at the NRS level. Specialized program recruiters are those who are involved in community relations such as the Youth Programs Petty Officer (YPP0) or a recruiter that has responsibility for DEP management in the NRD.

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<sup>1</sup>The Delayed Enlistment Program (DEP) allows a person to sign an enlistment contract and delay entering active duty for up to one year.



## **B. INCENTIVE PROGRAMS**

### **1. The Freeman Plan**

In 1979 the Navy instituted the Recruiter Productivity and Personnel Management System (RPPMS), or the Freeman Plan<sup>2</sup>, as it is more commonly known [Ref. 3]. As stated in the Enlisted Recruiting Training and Operating Procedures Standardization Manual (RETOPS-ENL):

The primary purpose of RPPMS is to alter the productivity profile of the recruiter force to one which will have a higher productivity average and enable the Navy Recruiting Command to attain future goals with the number of recruiters allowed under Congressional and Department of Defense (DOD) ceilings. The secondary purpose is to provide recruiters with timely information, measuring results of efforts, and offering incentives for performance above the standard norm.

This plan was developed to motivate Navy recruiters to increase the quantity and quality of enlistments. The Freeman Plan is a point accumulation system that rewards recruiters for individual productivity. A recruiter's productivity is measured by the number of new enlistment contracts obtained during a twelve-month period, less any attrition of individuals in the DEP awaiting accession [Ref. 4]. Awards are based on a twelve-month rolling average of Freeman points

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<sup>2</sup>The plan was named for Admiral Dewitt Freeman who, while working as a special advisor to CNRC, devised this plan to enhance recruiter productivity by offering a system of awards for top performance.

earned. By accumulating a sufficient number of points, a recruiter can earn a Certificate of Commendation, Navy Achievement Medal, voluntary extension of recruiting duty, and under certain conditions, an increase in grade. The awards for a twelve-month recruiting effort require the following average point accumulations per month:

1. Certificate of Commendation: 300 points
2. Navy Achievement Medal (NAM): 350 points
3. Voluntary extension of recruiting duty<sup>3</sup>: 400 points
4. Advancement of pay grade<sup>4</sup>: 525 points

Table 3 displays the Freeman Plan points awarded to recruiters for enlistees as specified by mental category.

**TABLE 3. FREEMAN PLAN POINT VALUES AWARDED BY MENTAL CATEGORY**

MENTAL CATEGORY	I	II	IIIU	IIIL	IV
HIGH SCHOOL DIPLOMA GRADUATE	116	107	100	90	70
NON-HIGH SCHOOL DIPLOMA GRADUATE	100	90	85	65	--

Source: COMNAVCRUITCOMINST<sup>5</sup> 1133.3C p. 8-2.

<sup>3</sup>Must be within 8-10 months of projected rotation date (PRD).

<sup>4</sup>Must be E4, E5, or E6 and meet all eligibility requirements in accordance with current directives.

<sup>5</sup>Commander, Navy Recruiting Command Instruction.

Recruiters would receive points for enlisting certain categories of recruits and work towards receiving personal awards for their efforts. Tight control of recruiters was maintained through documents to record daily activity, ensuring that they alone were responsible for earning the points for each specific enlistee. No contract sharing to enable another recruiter to reap a reward was allowed. These control systems required detailed record keeping so that RINCs could monitor the daily activity of recruiters and hold recruiters accountable for production to achieve goal in an independent fashion.

The Freeman Plan was a program with fixed performance criteria for awards. Therefore, differences in the recruiting environment between regions may have been reflected by differences in the relative number of award-winning recruiters [Ref. 4:p. 3].

The differences in point levels for specific mental categories and education levels of enlistees were designed to increase recruiter effort in recruiting the higher-quality individuals and to provide the recruiter with some incentives to concentrate in that market.

Since the Freeman Plan had fixed performance criteria and the differences in the recruiting environment were not controlled in relation to production, this plan, which operated well in an expanding environment, did not work as well when fewer recruits with higher quality were required.

As the requirement for higher quality recruits increased, those recruiters in difficult markets that had traditionally earned few awards with the Freeman Plan were almost unable to earn any awards. To these recruiters, the awards were perceived as a disincentive. Since the point totals required for awards were out of their reach, recruiters felt that attaining goal was near impossible and so the potential was great for their effort and productivity to decline. This seems to have been the largest flaw in the Freeman Plan.

These changes in the recruiting climate, with the emphasis on higher quality recruits, led to the development of several other programs to provide incentives for recruiters in what was thought to be a more equitable manner. These programs are discussed below.

## **2. Recruiter Meritorious Advancement Program (RMAP)**

A new recruiter advancement incentive plan was authorized by the Deputy Chief of Naval Operations (Manpower, Personnel, and Training) [DCNO (MPT)] on 1 October 1989. The purpose of this program was to provide special recognition for superior performance of production recruiters through meritorious advancement [Ref. 5]. Each calendar year, CNRC will authorize the advancement of fifty-seven production recruiters to the paygrade of E6 and fourteen to the paygrade of E7. The program is intended to allow CNRC to provide substantive recognition for superior performance under the

rigors of recruiting. For a recruiter to be advanced to E6, the individual must have served on recruiting duty continuously as a production recruiter for a minimum of twelve months immediately preceding nomination for the advancement. A candidate for advancement to E7 must have met the requirements with a minimum of 18 months. In addition to the district quotas, CNRC will hold ten quotas in reserve so that NRDs with more than their quota of outstanding production recruiters can submit recommendations for special consideration. Since there are only fourteen advancements to E7 throughout CNRC, all candidates will be recommended with a standardized recommendation form provided as an enclosure in COMNAVCRUITCOMINST 1430.1A. CNRC will then commence a selection process to determine E7 advancements.

### **3. Recruiter Advancement Through Excellence (RATE)**

A second recruiter command advancement incentive plan was approved on 18 October 1989 by DCNO (MPT). This plan, combined with other approved incentive plans, was supposed to provide the impetus needed to propel the Recruiting Command toward success by providing special recognition for superior performance of production recruiting teams [Ref. 6].

This program provides advancement incentives to production teams of recruiters for exceeding set percentages above minimum goal attainment. This is done at both the NRD level and the Zone level within an NRD. The DCNO (MPT) has

authorized advancements to paygrades E5 and E6 based on limits established by the formulas as excerpted from COMNAVCRUITCOMINST 1430.2B:

Navy Recruiting District level advancement:

$$(1) \quad \% \text{ achievement} = \frac{\% \text{NCO}^6 \text{ achieved} + \% \text{ male "A" cell achieved}}{2}$$

Attainment of less than 100% in either category results in zero percent achievement.

(2) For production of 100% to 105.999%:

$$(a) \quad \% \text{ achievement} - 100 = \% \text{ promotable}$$

$$(b) \quad (\% \text{ promotable}/100) \times (\# \text{ personnel onboard}) = \# \text{ personnel that may be advanced}$$

An example for production between 100% and 105.999%:

% NCO achieved = 102%  
% Male "A" Cell achieved = 103%  
# personnel onboard = 155

$$\% \text{ achievement} = \frac{102\% + 103\%}{2} = 102.5$$

$$\% \text{ promotable} = 102.5 - 100 = 2.5\%$$

$$\# \text{ personnel that may be advanced} = 2.5/100 \times 155 = 3.875$$

The number of personnel advanced would be rounded to three.

---

<sup>6</sup>NCO is New Contract Objective, which is the total goal assigned to a recruiting district each month.

(3) For production above 105.999%:

$$(a) \ 6 + 952.5 \frac{(\% \text{ achievement} - 100)}{100}^{3.3559} = \% \text{ promotable}$$

$$(b) \ (\% \text{ promotable}/100) \times (\# \text{ personnel onboard}) = \# \text{ personnel that may be advanced}$$

An example for production above 105.999%:

% NCO achieved = 107%

% Male "A" Cell achieved = 106%

# personnel onboard = 155

$$\% \text{ achievement} = \frac{107\% + 106\%}{2} = 106.5\%$$

$$\% \text{ promotable} = \frac{6 + 952.5 (106.5 - 100)^{3.3559}}{100} = 6.099$$

$$\# \text{ personnel that may be advanced} = \frac{6.099}{100} \times 155 = 9.45$$

The number advanced would be rounded to nine.

The instruction continues for Navy Recruiting Zone productivity:

If an NRD's new contract production is less than required to achieve an advancement under the above formulas, recruiters assigned to a production zone which demonstrates extraordinary production may, on a limited scope, also earn special advancement opportunity based on the following formulas:

Navy Recruiting Zone advancement:

(1) For production of 100% to 105.999%:

$$(a) \ \% \text{ promotable} = .52 (\% \text{ achievement} - 100)$$

$$(b) \ (\% \text{ promotable}/100) \times (\# \text{ zone personnel onboard}) = \# \text{ personnel in the zone that may be advanced}$$

(2) For production above 105.999%:

$$(a) \quad \% \text{ promotable} = \frac{.52(6 + 952.5(\% \text{ achievement} - 100))^{.3359}}{100}$$

$$(b) \quad (\% \text{ promotable}/100) \times (\# \text{ zone personnel}) = \# \text{ personnel that may be advanced}$$

Those personnel who are nominated for an advancement under the guidelines of the RMAP program or who have been advanced through the Command Advancement Program (CAP)<sup>7</sup> may not be nominated for advancement in the RATE program. Each individual nominated for advancement must meet all standard Navy requirements for advancement. The above formulas give the NRD Commanding Officer the authority to advance a specific number of personnel in the command, but it is not a mandatory advancement requirement. As directed by the instruction:

The Commanding Officer shall ensure that they select personnel for advancement based on merit, demonstrated leadership, and contribution to command mission objectives. Production is not the major consideration for RATE advancement. An advancement board will be convened consisting of at least one officer and a cross-section of senior enlisted personnel from the command. These nominations for advancement will then be forwarded to CNRC for authorization.

The RMAP and RATE programs have proven to be more equitable than the Freeman Plan was in rewarding recruiters

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<sup>7</sup>CAP is a Navy program, governed by BUPERSINST 1430.17D, that allows for the advancement of outstanding performers at fleet commands.



for success and level of effort, but throughout CNRC the feeling was that more improvements could still be made in the area of recruiter incentives as the market becomes more and more difficult because of increased competition from other services and civilian corporations [Ref. 7].

#### **4. Recruiter Excellence Incentive Program (REIP)**

In an effort to further improve the incentive system, a new program which has not yet been fully developed and approved, is discussed in CNRC Memorandum 2-93 of 17 March 1993. This document states:

...the current RATE and RMAP programs are being combined into a new program call the Recruiter Excellence Incentive Program (REIP). The reason for making this change is to improve the opportunity for all district enlisted personnel, E6 and below, in Navy Recruiting to compete for production related advancement.

The memorandum goes on to explain the reasoning behind the change in programs, addressing the problems of some districts that have struggled to make goal for several years. This new program attempts to correct for the lack of incentives that were available to these districts through the RATE and RMAP programs versus districts that produced well from year to year and earned large numbers of advancements. The memorandum pointed out that even in districts that do not do well, there are people who are extremely deserving of production-related incentive advancement.

Under the proposed guidelines of the REIP, the overall number of advancements will be approximately the same as the combined total under the RATE and RMAP programs. The change in the program combines the features of RATE and RMAP by making approximately one-half of the advancements not tied to production, but based on the number of recruiters onboard an NRD. This portion of the program is similar to the RMAP program in that NRDs will be given authority to award one advancement for every fifty enlisted assigned. The remaining half of advancements will be based on production performance, similar to the RATE program.

A new feature for advancements deals with the overall performance of CNRC. Should CNRC fail to attain accession goals or quality goals, production-related advancements would not be given. For recruiters to be advanced, the FY 93 program requires that the candidate must have been onboard for at least twelve months. For FY 94 and later, the requirement will change to a minimum of eighteen months onboard. Recruiters also must meet the standard Navy requirements for advancement, as with the previous programs. Each NRD will be limited to advancements equal to six percent of the enlisted onboard total per year.

As a summary of the program, the memorandum states:

REIP is a simple, straight-forward program which will offer a broader opportunity for production related incentive advancements than has been available under the RATE and RMAP programs. One thing that will not change, however, is the way to get advanced: those eligible who contribute the most to the production mission of their districts will be those advanced.

### C. SUMMARY

The Freeman Plan provided incentives during a time when recruiting was challenged to provide the Navy with the manpower to meet the 600-ship Navy proposed by President Reagan. With a change in this philosophy and the beginning of the drawdown of Naval forces, new programs were needed to provide incentives to recruiters with a stronger emphasis not on quantity, but on quality of recruits. The RATE and RMAP programs succeeded in providing the impetus for the change in the focus of the type of recruit desired. Now, with even more cuts in manpower requirements projected, today's recruiters find themselves in an even tougher recruiting environment and must be provided with attainable incentives if the Navy is to meet the quality goals for manning the Navy of the 1990s and beyond.

### **III. LITERATURE REVIEW**

This literature review is divided into two parts. The first part is a review of literature discussing Navy Recruiter Productivity in general. Sparse literature exists in the area of gender and ethnic or racial recruiting as this type of research has not been the focus of any study. The second portion of this chapter addresses the Freeman Plan Incentive Program. Because incentive programs in Navy recruiting have undergone some recent changes, literature was available only on the Freeman Plan, which was the plan used by Navy recruiting from 1979 through 1989. Details of the parameters of each incentive plan, including those that are current and one not fully implemented, are discussed in the previous chapter. This chapter concludes with a summary of the pertinent literature.

#### **A. RECRUITER PRODUCTIVITY**

##### **1. Joint Service Workshop on Recruiter Productivity**

The Joint Service Workshop on Recruiter Productivity was held at the Naval Postgraduate School, Monterey, California, from 28 February through 1 March 1983 [Ref. 8]. The purpose of this workshop was to review and discuss recruiting productivity measurement methods, state-of-the-art research initiatives concerned with recruiter

productivity, and information or knowledge voids. In the final report, which documents the major presentations and discussions of the Joint Service Workshop on Recruiter Productivity and is summarized in this section, the difficulties in measuring recruiter productivity are presented. The discussion in the report identified recruiter productivity as the product of many interacting factors, such as market characteristics, policy constraints, and resources. These resources include individual recruiter characteristics.

The Air Force, represented by LCOL Benjamin Varn, believed that the length of experience of recruiters in the field had a major influence on the productivity of recruiters. Air Force studies have shown that productivity increases dramatically after four months of recruiting service and then levels off and becomes constant. The most notable market factors found to affect recruiter productivity were socio-economic, demographic, and geographic variation factors. He concluded that previous productivity should be considered when setting goals for recruiting units. Those units that have a higher productivity not due to greater recruiter effort but due to an advantage of market factors should be assigned a higher goal.

Mr. Timothy Elig, of the U.S. Army Research Institute, reported that there was a strong correlation between the ethnic identity of recruiters and the ethnicity of the people they recruited [Ref. 8:p. 83-84]. He determined that

recruiters tend to recruit individuals like themselves, mainly due to the Army policy of trying to assign recruiters to an area of their choice and to their home state if possible. Since recruiters seek these assignments and are in an area of ethnic composition similar to their own background, the strong correlation in the ethnicity of the recruit should be expected. He also found there were no overall gender differences in productivity. In general, recruiters with post-secondary education tend to produce better educated recruits; similarly, the recruiters' AFQT had a strong impact on the production of male high school graduates in I-IIIA AFQT mental categories. Recruiter selection was addressed since recruiter effort plays a large part in how productive an individual can be. Some individuals, however, may not become productive recruiters regardless of the level of effort, as their personal characteristics may not suit them to be salespeople. In evaluating recruiter productivity, it is usually very difficult to separate salesperson (recruiter) characteristics from the nature of the market. More attention should be given to evaluation of the individual recruiter differences, how they affect productivity, and recruiter selection.

Captain H."O" Wright, U.S. Navy Recruiting Command, presented "Productivity Management in the Navy Recruiting Command" [Ref. 8: p.17-21], in which he described four exogenous and six endogenous subsystems of factors that were

thought to affect recruiter productivity. These factors are presented in Table 4.

**TABLE 4. SUBSYSTEMS OF FACTORS AFFECTING NAVY RECRUITING**

EXOGENOUS VARIABLES	ENDOGENOUS VARIABLES
RESOURCE CONSTRAINTS	MGMT INFO/TRACKING SYSTEMS
MARKET FACTORS	MARKET ANALYSIS
POLICY CONSTRAINTS	TRAINING
OTHER SERVICE COMPETITION	SELECTION
	MANAGEMENT/POLICY
	INCENTIVES

Source: Productivity Management in the Navy Recruiting Command. H."O" Wright, R. R. McCumber, C. E. Kannapel, Navy Recruiting Command.

The exogenous subsystems are comprised of factors beyond the control of CNRC, but they still have various impacts on recruiter productivity. Endogenous factors are those that CNRC uses to plan, stimulate, control, and reward recruiter productivity. These factors are the backbone of the management system of CNRC and are continually updated throughout the year.

Throughout this workshop, many different opinions were offered as to the method of defining recruiter productivity.

According to the Navy, recruiter productivity can be defined at the recruiter level with the following formula:

$$\text{Productivity Per Recruiter (PPR)} = \frac{\text{Net New Contracts}}{\text{Net Recruiters on Production}}$$

The Marine Corps had a similar formula to compute recruiter productivity:

$$\text{Productivity} = \frac{\text{Number of Contracts}}{\text{Number of recruiters} \times \text{Number of months}}$$

The Air Force defined recruiter productivity as the number of enlistments (or contracts) made by a recruiter for a given program over a given period of time.

In addition to addressing recruiter productivity issues, the conference also examined issues affecting recruiter selection and training because they would affect productivity to some extent.

## **2. Cooke and Lockman**

To evaluate the adequacy of recruiting resources, Cooke and Lockman used indicators of Navy recruiting success [Ref. 9]. They reviewed existing evidence on the tradeoffs between the number and quality of recruits obtainable with a given recruiting force to determine which objective, recruit quality or recruit quantity, can go unmet at least cost to the Navy. Recruits of higher quality are more difficult to obtain. The two most frequently used indicators of high quality are HSDG status and mental ability from the AFQT category. The standard definition of high quality is that the



quality is that the recruit must be in AFQT mental category I-III A and a HSDG. For the seven years previous to the study, quantity goals had been achieved but some quality goals had not been reached due to the increase in numbers of high-quality recruits needed to meet technical Navy needs.

Enlisting a higher-quality recruit involves a loss of more than one lower-quality recruit due to the recruiter effort required to identify and recruit the higher-quality individual. The cost of recruiting the four categories of recruit quality rises in the following order -- A (UMG HSDG), C (LMG HSDG), B (UMG NHSDG), and D (LMG NHSDG)-- when the recruiting market becomes more competitive, and vice versa when the market becomes less competitive.

### 3. Cooke

According to Cooke, variation in recruiter productivity is largely due to the geographic distribution of recruiters [Ref. 10]. Reallocation of recruiters based on geographic productivity differences would be the best use of recruiting resources [Ref. 11]. Recruiters in relatively good recruiting markets should be expected to be more productive. Although some of the variation can be attributed to individual recruiter characteristics, he believed that the geographic distribution of recruiters controlled productivity. Cooke developed a model for reallocation and assignment of

recruiters to improve recruiter productivity and efficiency [Ref. 10:p. 7-15].

To predict recruiter productivity, Cooke used multivariate regression to specify the relationship between average recruiter productivity and recruiting conditions and expectations for Navy recruiting from FY 84 through FY 86. He then examined the residuals by recruiting district to identify some of the remaining variation.

Cooke examined resources and policies [Ref. 11:p. 1] by addressing recruit quality, recruiter allocation, and the recruiting performance of recruiting districts and individual recruiters. For the years 1981-1986, he presented the quality of non-prior service contracts and how they compared with the number of recruiters assigned. He found that fewer recruiters in 1984 and 1985 led to a decline in the number and quality of recruits as the recruiting environment worsened and accession requirements increased.

To examine geographic variation in recruiter productivity, Cooke defined productivity as the average annual enlistments of A-cell and CU-cell recruits per recruiter. These types of enlistments were used since enlistments of other recruits are relatively constant across districts and due to the limited extent to which the Navy accepts those recruits. Cooke used data from FY 84 through FY 86 to investigate the trends in geographic variation in recruiter productivity. He made adjustments to his previous study on

the reallocation of recruiters to increase efficiency and productivity.

## **B. THE FREEMAN PLAN**

### **1. Cooke**

Cooke's report [Ref. 4:p. 10-15] reviewed the Navy's recruiter incentive program, the Freeman Plan, that was in effect for the period 1979 through 1989. This plan, which is described in detail in Chapter II of this thesis, provided incentives for individual recruiters for a fixed standard of performance. This standard did not account for differences in the difficulty of recruiting in differing markets or geographical areas. Cooke thought that a competitive incentive structure could offer advantages, since it has the potential to adapt incentives to a wide variety of circumstances.

Since the competitive system can adapt incentives to induce greater levels of productivity, it is thought to be relatively effective when the variation in production for recruiters in different regions or periods is large compared to the variations of relative productivity of recruiters in similar circumstances. Competitive systems are thought to be less effective when variation in recruiter productivity in similar circumstances is large relative to differences in productivity attributable to the environment, and the number

of potential winners is small relative to the number of recruiters.

Cooke analyzed recruiter performance under the Freeman Plan for the years 1980 to 1984 to characterize the nature of individual recruiter incentives and geographic differences in performance relative to current award criteria. In his analysis he assumed that, on average, the ability distribution of recruiters does not vary much over time or between regions, and that the inequality of outcome reflects an inequality of opportunity. The basis of fairness in competitive systems is equal opportunity and therefore Cooke concluded that an alternative award system to the Freeman Plan would provide equity among recruiters.

One alternative plan would be to have a competitive system within a recruiting area. This would tend to equalize reward opportunities across regions for given levels of effort. These rewards could be based on performance relative to others in the same area and may increase production incentives for recruiters in relatively difficult recruiting areas. The recruiters would be rewarded according to their ability and effort relative to others in similar circumstances. Since this would encourage effort in both good and bad recruiting conditions, the relative performance criteria would improve the efficiency of the recruiting force.

## **2. Asch**

Asch conducted a study [Ref. 12] to determine whether the Freeman Plan resulted in a pattern of behavior in recruiters consistent with the Navy's recruiting goals. Asch analyzed the relationship between productivity and recruiter experience under the Freeman Plan and compared it to the relationship found in past studies when workers did not participate in an incentive program.

This study took a micro approach and analyzed recruiter productivity from NRD Chicago for five months in FY 86. During this time the Chicago District was one of the most successful districts in the country in meeting its quotas. Thus, recruiter productivity and the Freeman Plan were examined in an environment where overall performance was more than satisfactory.

Asch found that the behavior of recruiters was consistent with the incentives of the Freeman Plan but may be inconsistent with the Navy's recruiting goals and with its desired recruiter behavior. In general, recruiters who were successful in earning points on the Freeman Plan recruited more high quality than low quality enlistments. Those recruiters who were more successful in the early portion of the twelve month production cycle were more inclined to recruit lower quality enlistments during the rest of the cycle. This conflicts with the Navy's overall recruiting objective of enlisting a high quality force.

The analysis indicated that a pattern existed with recruiters appearing to increase productivity over the production cycle, with productivity being the highest when recruiters became eligible to win a reward. Several theories were presented to account for this phenomenon: recruiters stockpiled future enlistments at the beginning of the cycle and depleted their stock at the end of the cycle or recruiters procrastinated until they approached the reward eligibility month, at which point they greatly intensified their recruiting effort. The recruiters who were successful did not further increase their productivity in future months of the cycle. Their productivity remained fairly stable except for the period immediately following receipt of a reward when productivity dropped substantially. This suggests that recruiters may value leisure more than better rewards.

Unlike Cooke, Asch appeared to support the Freeman Plan and recommended that marginal changes should be made to increase the effect of incentives on recruiter productivity. Recommendations included shortening the length of the production cycle to discourage recruiters from supplying less effort at the beginning of the cycle and to encourage a more constant level of enlistments over time, and increasing the point differential between high and low quality enlistments to induce recruiters to enlist more high quality individuals to meet the Navy's main recruiting objective. Alternatives of

significantly altering the Freeman Plan or replacing the plan were also mentioned as options for further study.

### C. SUMMARY

Recruiter productivity is difficult to measure and define due to the interacting factors of market and recruiter. The characteristics of the recruiter and the geographic variability of the market have a large influence on the type of individual recruited, such as ethnicity or education level, while gender of the recruiter appeared to have no influence.

The Freeman Plan, as it was originally defined and structured, had to be changed if the efficiency of the recruiting force was to be increased. The Freeman Plan was shown to be inconsistent with the Navy's recruiting goals and desired recruiter behavior. Some type of competitive system at the recruiting area level is needed to equalize reward opportunities across regions for given levels of effort.

#### **IV. DATA AND METHODOLOGY**

##### **A. DATA SOURCE AND ORGANIZATION**

###### **1. Source**

The data for this analysis was compiled from files provided by CNRC consisting of demographic information for enlisted Navy recruiters for the period FY 88 - FY 90, demographic information on all enlisted contracts for the same time period, and general goal information for each NRA and NRD. The variables available in the recruiter and contract data files are presented in Table 5. Unemployment data was gathered for each NRD and year from statistical abstracts [Ref. 13], [Ref. 14], and [Ref. 15]. All data files were merged together to form a SAS data set.<sup>1</sup>

###### **2. Organization**

The recruiter file contained 8,220 observations of recruiters with the frequency distribution of characteristics as shown in Table 6. As Table 6 shows, the majority of the recruiters are male and white, have twelve years of education or more, are in paygrade E6, and are in AFQT mental categories I-IIIA.

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<sup>1</sup>SAS is the Statistical Applications System used for all of the analysis in this thesis.



**TABLE 5. RECRUITER AND CONTRACT FILE VARIABLES**

Recruiter Variables	Contract Variables
SSN	SSN
SEX	SEX
RACE	RACE
ETHNIC	RECRUITER SSN
AFQT SCORE	AFQT SCORE
EDUCATION YEARS	EDUCATION STATUS
EDUCATION CERTIFICATE	STATION ID
UNIT IDENTIFICATION CODE	RESERVATION DATE
PAYGRADE	PROGRAM/RATING
	ENLISTMENT/ATTRITION DATE

Source: Compiled by author from CNRC files.

**TABLE 6. RECRUITER FREQUENCY DISTRIBUTIONS, FY 88 - FY 90**

CHARACTERISTIC	NUMBER	PERCENT
MALE	7909	96.2
WHITE	6557	79.8
BLACK	1151	14.0
HISPANIC	411	5.0
E5	2872	34.9
E6	4436	54.0
EDUCATION $\geq$ 12 YEARS	7142	86.8
AFQT CATEGORY I	458	5.8
AFQT CATEGORY II	3144	40.1
AFQT CATEGORY IIIA	1824	23.3

Source: Compiled by author from CNRC recruiter file.

The contract file initially contained 298,920 observations. After deleting missing and unknown values, the file consisted of 284,243 observations with the frequency distribution of characteristics as shown in Table 7.

**TABLE 7. CONTRACT FILE FREQUENCY DISTRIBUTION, FY 88 - FY 90**

CHARACTERISTIC	NUMBER	PERCENT
MALE	247,150	87.0
WHITE	190,181	66.9
BLACK	57,219	20.1
HISPANIC	27,035	9.5
HIGH SCHOOL DIPLOMA GRADUATE	157,877	55.5
HIGH SCHOOL SENIOR	104,834	36.9
AFQT CATEGORY I	12,069	4.2
AFQT CATEGORY II	93,912	33.0
AFQT CATEGORY IIIA	70,226	24.7
AFQT CATEGORY IIIB	86,407	30.4
AFQT CATEGORY IV	21,624	7.6
AFQT CATEGORY V	0	0

Source: Compiled by author from CNRC contract file.

As expected, the majority of the contracts are male, white, HSDG, and in AFQT categories I-III A. Because the Navy is most interested in UMG, HSDG, A-cell individuals, a subset of the data, including those individuals who were contracted as high school seniors and who met these parameters, was constructed

and consists of 155,930 observations. The frequency distribution of these observations is presented in Table 8.

**TABLE 8. UMG, HSDG, AND SENIOR CONTRACT FREQUENCY DISTRIBUTIONS, FY 88 - FY 90**

CHARACTERISTIC	NUMBER	PERCENT
MALE	130,570	83.7
FEMALE	25,360	16.3
WHITE	119,194	76.4
BLACK	18,653	11.9
HISPANIC	13,326	8.5
AFQT CATEGORY I	11,689	7.5
AFQT CATEGORY II	85,386	54.8
AFQT CATEGORY IIIA	58,855	37.7

Source: Compiled by author from CNRC contract file.

As shown in the above table, the contracted individuals who are UMG, HSDGs and seniors are overwhelmingly male, white, and in AFQT category II. The data provided did not specify the number of high school seniors who graduated after enlisting in the Navy. Data from other sources, on HSDGs entering Navy basic training will therefore differ from data for those individuals who were contracted as HSDG and seniors since not all high school seniors contracted graduated from high school.

## **B. METHODOLOGY**

Several methodologies were used to analyze productivity differences and the differences between incentive program production. To examine the level of recruiter productivity, descriptive statistics were used to determine the average annual contracts per recruiter per NRA or NRD. Once the averages were calculated, bivariate analysis in the form of an Analysis of Variance (ANOVA) test was used to determine significant relationships between variables. This method does not allow for all variables to be held constant, but gives a general picture for limited variable analysis. Multivariate regression analysis was then used to examine the specific effect of variables upon productivity. In this method, variables can be held constant and more in-depth analysis can be conducted for all relationships between recruiters. For the incentive program analysis, descriptive statistics were computed to compare productivity levels. An ANOVA test was used to determine overall differences in productivity between the two programs, and then multivariate regressions were modeled for each incentive program.

### **1. Recruiter Productivity**

To analyze geographic differences in recruiter productivity by gender and ethnicity, the average productivity for recruiters by NRD for the FY 88 - FY 90 period was calculated. These average productivity figures were then

aggregated at the NRA level. Once average productivity was calculated, bivariate ANOVA procedures were conducted on those results to determine significant relationships between variables.

Descriptive statistics were employed to analyze samples of white, black, and Hispanic HSDGs and those contracted as high school seniors broken down by the type of recruiter. For example, the black sample was analyzed using black recruiters, white recruiters, and Hispanic recruiters to determine productivity levels of each type of recruiter when recruiting black individuals. This was done for each fiscal year individually, and then combined for FY 88 - FY 90 to analyze the geographical differences in minority recruiting. This methodology was repeated for the white sample and Hispanic sample.

The same methodology was used for UMG, HSDG and senior, male and female samples to analyze male and female recruiter productivity by areas and districts when recruiting males and females.

Bivariate analysis was then conducted through an ANOVA test of the means. A multivariate linear regression model was then constructed to analyze the specific effects of variables on annual productivity. The general form of the specified model is as follows:

Annual Contracts =  $f$  (recruiter race, recruiter gender, recruiter location)

## 2. Incentive programs

The data set of UMG HSDGs and seniors was divided into two samples, the Freeman Era (FY 88-89) and the Post-Freeman Era (FY 90). This allowed for the comparison between two samples of data. Descriptive statistics calculating average annual productivity were used to determine the difference in productivity levels for the Freeman and Post-Freeman Era incentive programs. Once the average productivity was computed for the respective incentive program at the NRD level, it was then aggregated at the NRA level, as in the recruiter productivity analysis, to analyze the differences in productivity levels under the incentive programs. To determine differences between the two programs, bivariate analysis was then conducted on the means using the ANOVA procedure.

A multivariate linear regression model was specified for each incentive program with the following form:

Annual contracts =  $f$  (recruiter race, recruiter gender, recruiter location, unemployment rate in NRD, goals assigned to NRD)

Using SAS, this specific model was run on both the Freeman Era sample and the Post-Freeman Era sample for those contracted as

UMG HSDGs and seniors to examine the specific effects of the variables on productivity.

## **V. ANALYSIS/RESULTS**

Analysis of each recruit type sample was performed using descriptive statistics to show the number of annual contracts recruited per recruiter and then aggregated for each area. The results of the analysis with descriptive statistics at the NRD level are included as Appendix B.

Supporting this analysis are the multivariate regression results and the bivariate ANOVA results for the same samples. The results from the regression analysis performed at the NRD level are included as Appendix C. Since the multivariate approach provides more in-depth analysis, the ANOVA results, which confirmed the regression analysis are presented in Appendix D and not discussed in this chapter with the exception of comparing the incentive programs. Area 7 was chosen as the omitted condition in all regression models since it is historically the most productive Area. Other omitted conditions are discussed with the results of each sample.

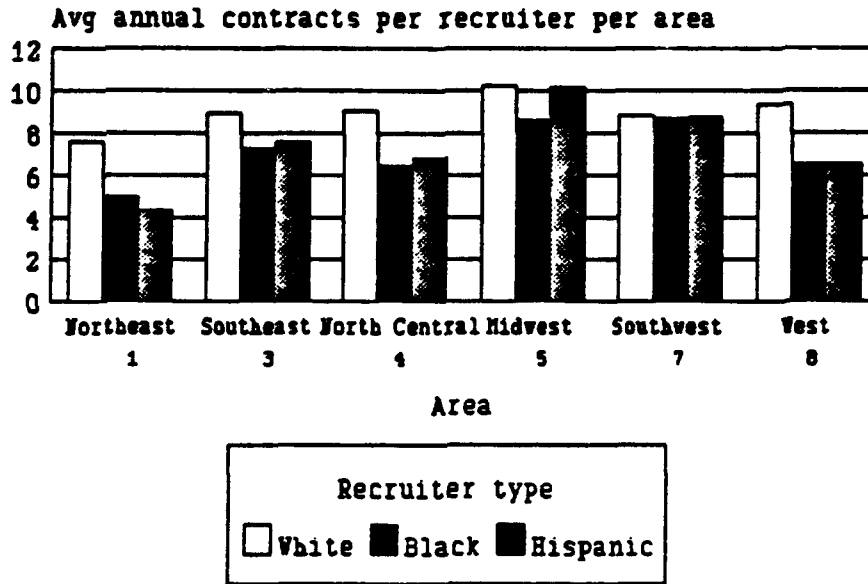
### **A. SAMPLE OF WHITE RECRUITS**

The sample of white, UMG, HSDGs and seniors consisted of 119,194 observations. The productivity levels of white, black, and Hispanic recruiters when recruiting UMG, HSDGs and seniors is displayed in Figure 1. The information in Figure 1 has been aggregated to show productivity at the NRA level.



# White Recruits

FY88-FY90 UMG, HSDG and Seniors



UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source: Compiled by author from CNRC files

Figure 1

Results of the multivariate regression model are presented in Table 9. In this model, the omitted condition was the white male recruiter. Table 9 shows that white recruiters were significantly more productive than black and Hispanic recruiters when recruiting white recruits. Area 5 was significantly more productive while Area 1 was significantly

**TABLE 9. REGRESSION COEFFICIENTS FOR WHITE RECRUITS,  
FY 88-90  
(t-statistic)**

<b>VARIABLE</b>	
INTERCEPT	9.150071 (67.008)*
FEMALE RECRUITER	-0.055925 (-0.190)
BLACK RECRUITER	-2.451704 (-15.359)*
HISPANIC RECRUITER	-2.201778 (-8.684)*
AREA 1	-1.621351 (-8.183)*
AREA 3	0.099428 (.539)
AREA 4	-0.271610 (-1.453)
AREA 5	0.896954 (4.854)*
AREA 8	-0.246729 (-1.321)

\*Statistically significant at the .0001 level.

Source: Compiled by author from CNRC data files.

less productive than Area 7. The productivity of Areas 3, 4, and 8 were not significantly different than Area 7. No significant difference occurred between male and female recruiters when recruiting white individuals.

The productivity levels displayed in Figure 1 are confirmed by the regression results shown in Table 9. In this sample, Area 5 was the most productive area, with white recruiters having the highest overall productivity.

## B. SAMPLE OF BLACK RECRUITS

The sample of black, UMG, HSDGs and seniors consisted of 18,653 observations. The productivity levels of white, black, and Hispanic recruiters aggregated at the NRA level are displayed below in Figure 2. Multivariate linear regression results are presented in Table 10.

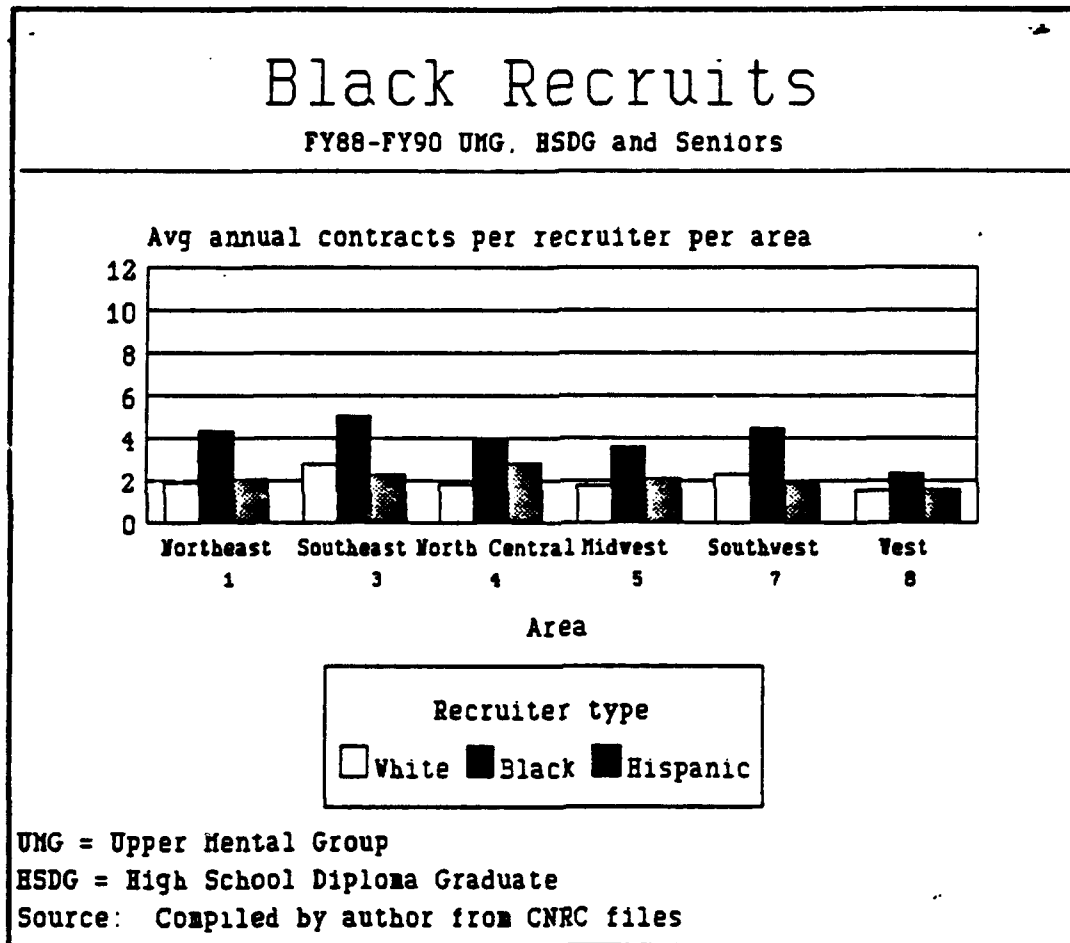


Figure 2

**TABLE 10. REGRESSION COEFFICIENTS FOR BLACK RECRUITS,  
FY 88-90  
(t-statistic)**

VARIABLE	
INTERCEPT	4.779100 (51.960)*
FEMALE RECRUITER	-0.123852 (-0.745)
WHITE RECRUITER	-2.254701 (-30.448)*
HISPANIC RECRUITER	-1.444252 (-9.289)*
AREA 1	-0.310771 (-2.642)*
AREA 3	0.256618 (2.610)**
AREA 4	-0.589947 (-5.194)*
AREA 5	-0.539077 (-4.549)*
AREA 8	-1.435649 (-11.775)*

\*Statistically significant at the .0001 level.

\*\* Statistically significant at the .0090 level.

Source: Compiled by author from CNRC data files.

The omitted condition in this model was the black male recruiter. Table 10 shows that black recruiters were significantly more productive than both white and Hispanic recruiters when recruiting black individuals. When white and Hispanic recruiters were compared, Hispanic recruiters were found to be significantly more productive than white recruiters. Area 7 was found to be significantly more

productive than all areas with the exception of Area 3. There was no significant difference between male and female recruiters when recruiting black individuals.

These regression results support the differences in productivity levels shown in Figure 2. The most productive geographical area was Area 3, followed by Area 7. These results are as expected when considering the distribution of the general population across the United States [Ref. 13:pp.33-34, Ref. 14:pp. 33-35, Ref. 15:pp. 34-36]. These population tables show that the largest population of black individuals reside in the geographic locations included in Areas 3 and 7.

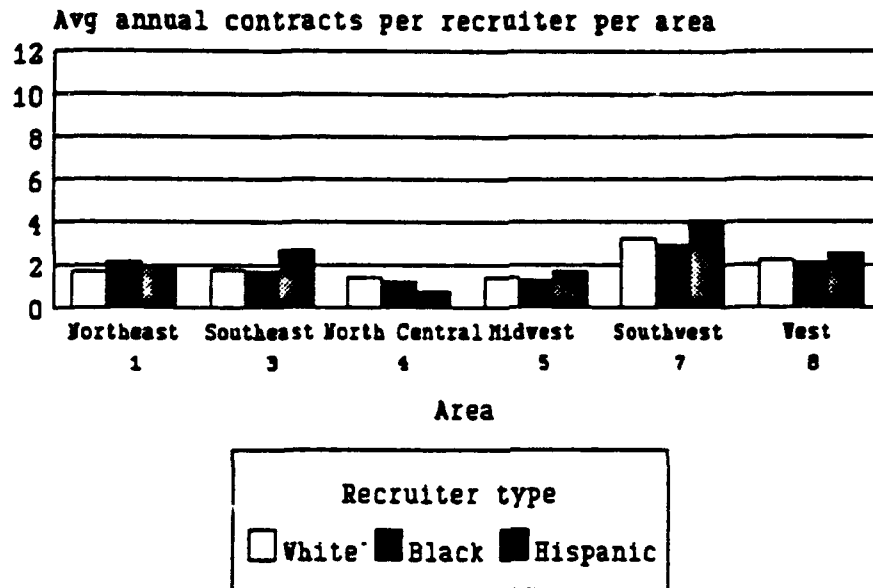
#### **C. SAMPLE OF HISPANIC RECRUITS**

The sample of Hispanic, UMG, HSDGs and seniors consisted of 13,326 observations. The productivity levels of white, black, and Hispanic recruiters are displayed in Figure 3.

Multivariate linear regression results are presented in Table 11. In this model, the omitted condition was the Hispanic male recruiter. Table 11 shows that Hispanic recruiters were significantly more productive than white and black recruiters when recruiting Hispanics. Area 7 was significantly more productive than all other Areas, and no significant difference was found between male and female recruiters in recruiting Hispanic individuals.

# Hispanic Recruits

FY88-FY90 UMG, HSDG and Seniors



UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source: Compiled by author from CNRC files

Figure 3

The regression results support the productivity levels displayed in Figure 3. As expected, Area 7, the Area with the largest population of Hispanics [Ref. 13:pp. 33-34, Ref. 14:pp. 33-35, Ref. 15:pp. 34-36], had the highest average annual productivity per recruiter in the Hispanic sample.

**TABLE 11. REGRESSION COEFFICIENTS FOR HISPANIC SAMPLE,  
FY 88-90  
(t-statistic)**

VARIABLES	
INTERCEPT	4.319633 (34.231) *
FEMALE RECRUITER	-0.152838 (-0.835)
WHITE RECRUITER	-0.710897 (-6.050) *
BLACK RECRUITER	-0.826629 (-5.850) *
AREA 1	-1.286986 (-10.402) *
AREA 3	-1.570691 (-13.882) *
AREA 4	-2.178511 (-16.726) *
AREA 5	-2.130441 (-16.412) *
AREA 8	-1.285960 (-13.452) *

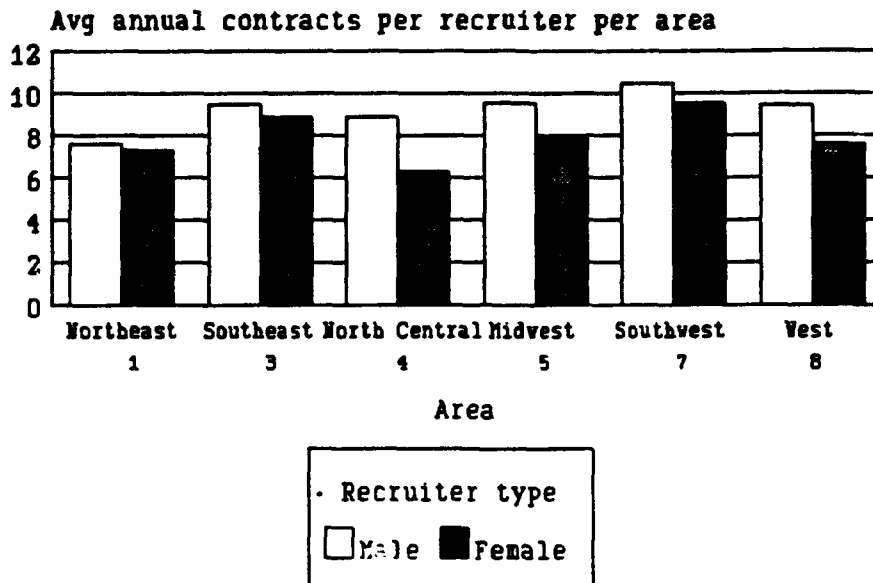
\* Statistically significant at the .0001 level.  
Source: Compiled by author from CNRC files.

#### **D. SAMPLE OF MALE RECRUITS**

The sample of male, UMG, HSDGs and seniors consisted of 130,570 observations. The productivity levels of male and female recruiters are displayed in Figure 4. The information presented in this figure has been aggregated to show productivity at the NRA level. Results of the multivariate regression model are presented in Table 12. The omitted

# Male Recruits

FY88-FY90 UMG, HSDG and Seniors



UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source: Compiled by author from CNRC files

Figure 4

condition for this model was the white, male recruiter. Table 12 shows that white recruiters were significantly more productive than both black and Hispanic recruiters when recruiting males, and Area 7 was significantly more productive than all other Areas. No significant difference in recruiting males existed between male and female recruiters.



**TABLE 12. REGRESSION COEFFICIENTS FOR MALE RECRUITS, FY 88-90  
(t-statistic)**

<b>VARIABLE</b>	
INTERCEPT	10.367472 (79.294)*
FEMALE RECRUITER	-0.505232 (-1.775)
BLACK RECRUITER	-0.512268 (-3.418)*
HISPANIC RECRUITER	-0.530439 (-2.220)**
AREA 1	-2.721948 (-14.337)*
AREA 3	-0.835410 (-4.691)*
AREA 4	-1.478069 (-8.177)*
AREA 5	-1.026550 (-5.747)*
AREA 8	-1.106470 (-6.158)*

\*Statistically significant at the .0006 level.

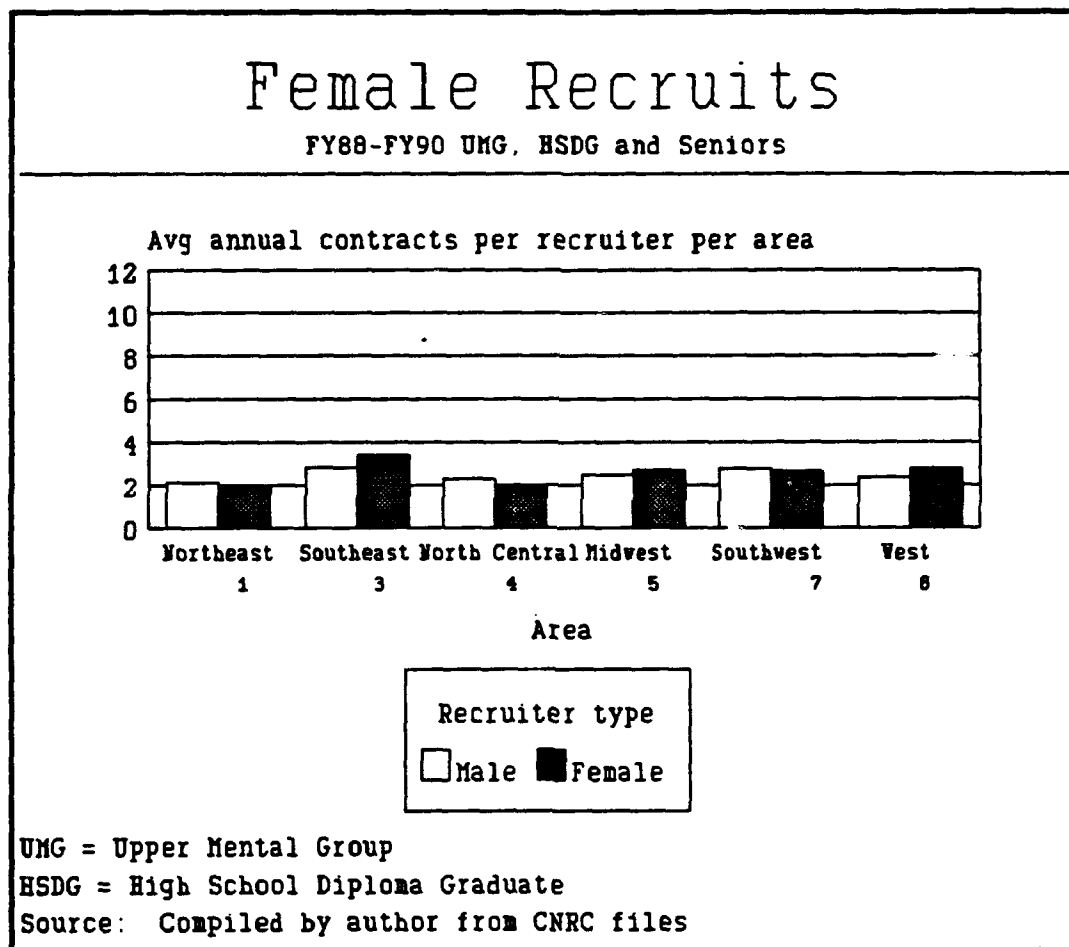
\*\* Statistically significant at the .02 level.

Source: Compiled by author from CNRC data files.

The productivity levels displayed in Figure 4 are substantiated by the regression results in Table 12. For this sample, white recruiters from Area 7 showed the highest levels of productivity.

## E. SAMPLE OF FEMALE RECRUITS

The sample of female, UMG, HSDGs and seniors consisted of 25,360 observations. The productivity levels of male and female recruiters are displayed in Figure 5. These levels have been aggregated at the NRA level.



**Figure 5**

Multivariate regression results are presented in Table 13. The omitted condition in this model was the white female

**TABLE 13. REGRESSION COEFFICIENTS FOR FEMALE RECRUITS,  
FY 88-90  
(t-statistic)**

VARIABLE	
INTERCEPT	3.118179 (33.050)*
MALE RECRUITER	-0.4254422 (-4.811)*
BLACK RECRUITER	0.324730 (6.823)*
HISPANIC RECRUITER	-0.019536 (-0.244)
AREA 1	-0.634768 (-9.988)*
AREA 3	0.086722 (1.520)
AREA 4	-0.450438 (-7.595)*
AREA 5	-0.302718 (-5.190)*
AREA 8	-0.390650 (-6.621)*

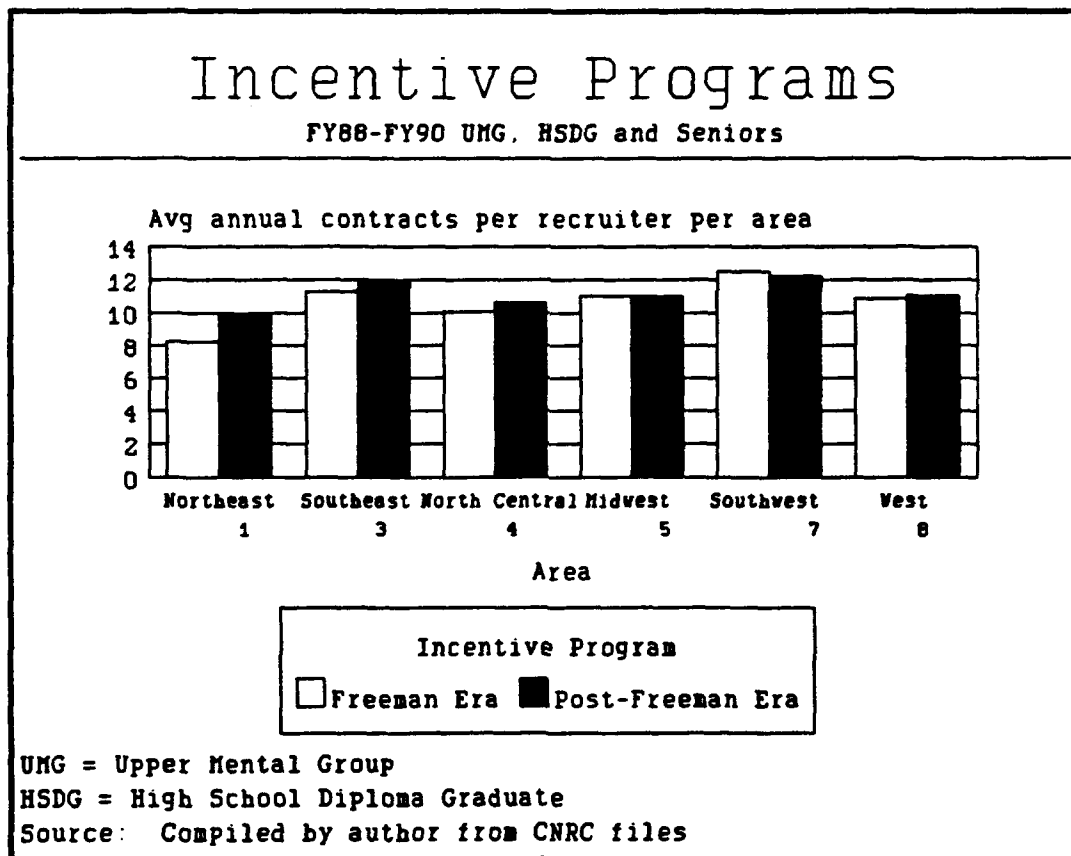
\*Statistically significant at the .0001 level.  
Source: Compiled by author from CNRC data files.

recruiter. Table 13 shows that female recruiters were significantly more productive than male recruiters when recruiting females, and black recruiters were significantly more productive than white recruiters. Geographically, Area 7 was significantly more productive than all other Areas, with the exception of Area 3. These results support the differences in productivity as shown in Figure 5. Although as

shown in Figure 5, Area 3 was more productive, the difference is not statistically significant.

#### F. INCENTIVE PROGRAM ANALYSIS

The sample for the incentive program analysis consisted of 155,930 individuals, which included all those contracted as UMG, HSDGs and seniors. The productivity levels of recruiters during the Freeman Era and Post-Freeman Era are displayed in Figure 6.



**Figure 6**

The multivariate regression analysis for the Freeman Era is presented in Table 14. The omitted condition in this model was the white male recruiter. Table 14 shows that during the Freeman Era, the significant variables were the location variables as opposed to the type of recruiter doing the recruiting. Area 1 and Area 4 were significantly less productive than Area 7, while all other Areas were not significantly different. Other significant variables included goals and the unemployment rate. Goals and the local unemployment rate would be expected to have a significant impact on annual contract achievement by individual recruiters. The negative coefficient on the goals variable indicates that the higher the goal, the lower the number of recruits. This is an expected result since the Freeman Era was based on individual goal achievement. As discussed in the review of Freeman Plan literature, the Freeman Plan often acted as a disincentive: goals that were too high were considered impossible by individual recruiters, causing many recruiters to show a decrease in effort and productivity.

Although specific data for these goals was unavailable at the individual recruiter level, it was still expected that overall goal and the unemployment rate would affect productivity within this individual recruiter incentive program.

**TABLE 14. REGRESSION COEFFICIENTS OF THE FREEMAN PLAN ERA,  
FY 88-89  
(t-statistic)**

VARIABLE	
INTERCEPT	11.136180 (17.839) *
FEMALE RECRUITER	0.406640 (0.9870)
BLACK RECRUITER	-0.349142 (-1.602)
HISPANIC RECRUITER	-0.469125 (-1.364)
AREA 1	-2.577551 (-7.240) *
AREA 3	0.192241 (0.603)
AREA 4	-0.849034 (-2.825) **
AREA 5	-0.390494 (-1.315)
AREA 8	0.599964 (1.665)
UNEMPLOYMENT RATE	0.380115 (6.138) *
GOALS	-0.001085 (-7.948) *

\*Statistically significant at the .0001 level.

\*\*Statistically significant at the .0047 level.

Source: Compiled by author from CNRC files.

Multivariate regression results for the Post-Freeman Era are presented in Table 15. This model also had the omitted condition of the white male recruiter. As in the Freeman Era, the significant variables were the location variables.

**TABLE 15. REGRESSION COEFFICIENTS FOR THE POST-FREEMAN ERA,  
FY 90  
(t-statistic)**

<b>VARIABLE</b>	
INTERCEPT	12.593750 (15.858) *
FEMALE RECRUITER	-0.890491 (-1.626)
BLACK RECRUITER	0.171218 (0.594)
HISPANIC RECRUITER	-0.574805 (-1.215)
AREA 1	-2.374946 (-4.712) *
AREA 3	-0.452942 (-1.035)
AREA 4	-1.523103 (-3.760) *
AREA 5	-1.444695 (-3.496) *
AREA 8	-1.050782 (-2.035) **
UNEMPLOYMENT RATE	-0.000555 (-0.006)
GOALS	-0.000169 (-0.727)

\*Statistically significant at the .0005 level.

\*\*Statistically significant at the .0400 level.

Source: Compiled by author from CNRC files.

In the Post-Freeman Era, all Areas with the exception of Area 3 were significantly less productive than Area 7. As expected with this team-based incentive program, both goal and unemployment rate variables were no longer significant when evaluating annual productivity.

Since the incentives are team-based, individual recruiters are no longer responsible for specific goals but can specialize in other areas of recruiting, such as processing individuals. Other recruiters on the team can maximize efforts in contacting prospects for enlistment and meeting the team goals. This type of system would be expected to lessen the impact of goals and the unemployment rate on average annual productivity per recruiter.

In comparing the two incentive programs, bivariate analysis using ANOVA showed a small positive effect of the Post-Freeman Era. The results of this analysis are presented in Table 16.

**TABLE 16. ANALYSIS OF VARIANCE OF INCENTIVE PROGRAMS**

ERA	MEAN
FREEMAN	10.7930
POST-FREEMAN	11.1927
LEAST SIGNIFICANT DIFFERENCE = 0.6824	
CRITICAL VALUE OF T = 1.99, ALPHA = 0.05	

Source: Compiled by author from CNRC files.



As shown in Table 16, the difference between the Freeman Era and the Post-Freeman Era was .3997. This difference was not significant. It is extremely difficult to draw a conclusion from this analysis for two specific reasons. First, the goal data was not available at either the individual recruiter level, upon which the Freeman Era incentive program was based, or at the recruiter team or station level, upon which the Post-Freeman Era incentive program is based. Second, only the first, or transition year, of Post-Freeman Era data was available, which may not accurately reflect the changes in incentives as they relate to productivity.

## **VI. CONCLUSIONS/RECOMMENDATIONS**

### **A. CONCLUSIONS**

This study has undertaken the initial research into issues regarding ethnicity and gender recruiting and relating productivity levels to geographic areas. Some analysis of recruiting during the Freeman Era has already been conducted, noted in the literature review, but the Post-Freeman Era is so new that no previous research has been done. This section details the conclusions gained from the analysis in the previous chapter.

#### **1. Geographic**

Area 7 was found to be significantly more productive than all other Areas in the recruiting of males, females, and Hispanics. Area 5 was significantly more productive than all other Areas in recruiting white individuals, while Area 3 was significantly more productive than all other Areas in the recruiting of black recruits.

#### **2. Ethnicity**

Recruiters were found to be significantly more productive when recruiting individuals like themselves than when recruiting individuals of a different ethnic or racial background.

In addition to recruiters being significantly more productive when recruiting individuals of the same ethnicity, Hispanic recruiters were significantly more productive than white recruiters when recruiting black individuals. There were no other significant relationships found when comparing the ethnicity of recruiters to the ethnicity of recruits.

### 3. Gender

Although male recruiters had higher average productivity than females when recruiting males, the differences between the gender of recruiters was not statistically significant. Female recruiters on the other hand, were more productive when recruiting females and this difference was statistically significant.

In crossing the gender of recruiter and the ethnicity of recruit, no significant differences were found between male and female recruiters.

### 4. Incentive programs

In the Freeman Era, recruiters in Area 1 and Area 4 were significantly less productive than in Area 7. When examining the Post-Freeman Era, in addition to those areas mentioned above, Area 5 and Area 8 were also less productive than Area 7.

When comparing the two eras, there appears to be a small positive, though statistically insignificant effect, of the Post-Freeman Era on overall productivity for all areas.

However, this finding must be qualified. Two factors that must be considered: One is the unavailability of goal data at the individual recruiter level (Freeman Era) and at the station/team level (Post-Freeman Era). As detailed in Chapter III, these two incentive programs are based on productivity at these levels. Second, the available data included only the first year of the Post-Freeman Era. This year should be considered a transition period between the two incentive programs, thereby possibly adding bias due to the inefficiency of the recruiters while switching to the "new system".

#### **B. RECOMMENDATIONS**

Based on this study, I recommend the following:

1. CNRC should examine recruiter assignment policies to ensure that the most productive recruiters are assigned to the field.
2. If goals are to be increased in the area of black, Hispanic or female recruiting, more recruiters with these characteristics should be assigned to the field.
3. Further study should be conducted using current, detailed goal information to assess the impact of incentive programs on recruiting and the trends that should by now be established in the Post-Freeman Era.

The second recommendation, although it appears straightforward, must be treated carefully and incorporated with recommendation one. Prior to making changes in the assignment of recruiters, the tradeoff that may occur in the

productivity of specific types of recruiters must be examined.

For example, if there is an increase in black goal and black recruiters are substituted for white recruiters, the goal for black individuals may be met. However, the overall productivity in recruiting white recruits could decline, since white recruiters are more productive than black recruiters when recruiting white individuals. All tradeoffs between the different types of recruiters should be examined to accurately achieve the required goals and to have the most effective, efficient, and productive recruiters in the field.

## **APPENDIX A: NAVY RECRUITING AREAS AND DISTRICTS**

### **NAVY RECRUITING AREA ONE: Scotia, New York Northeast**

<u>District</u>	<u>Location</u>
101	Albany, NY
102	Boston, MA
103	Buffalo, NY
104	New York, NY
119	Philadelphia, PA
161	Iselin, NJ

### **NAVY RECRUITING AREA THREE: Macon, Georgia Southeast**

<u>District</u>	<u>Location</u>
310	Montgomery, AL
311	Columbia, SC
312	Jacksonville, FL
313	Atlanta, GA
314	Nashville, TN
315	Raleigh, NC
316	Richmond, VA
348	Miami, FL

### **NAVY RECRUITING AREA FOUR: Columbus, Ohio North Central**

<u>District</u>	<u>Location</u>
406	Harrisburg, PA
409	Washington, DC
417	Cleveland, OH
418	Columbus, OH
420	Pittsburgh, PA
422	Detroit, MI

**NAVY RECRUITING AREA FIVE: Great Lakes, Illinois  
Midwest**

<u>District</u>	<u>Location</u>
521	Chicago, IL
524	St. Louis, MO
526	Louisville, KY
527	Kansas City, MO
528	Minneapolis, MN
529	Omaha, NE
542	Indianapolis, IN
559	Milwaukee, WI

**NAVY RECRUITING AREA SEVEN: Dallas, Texas  
Southwest**

<u>District</u>	<u>Location</u>
725	Denver, CO
730	Albuquerque, NM
731	Dallas, TX
732	Houston, TX
733	Little Rock, AR
734	New Orleans, LA
746	San Antonio, TX
747	Memphis, TN

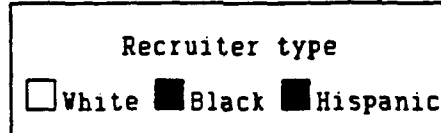
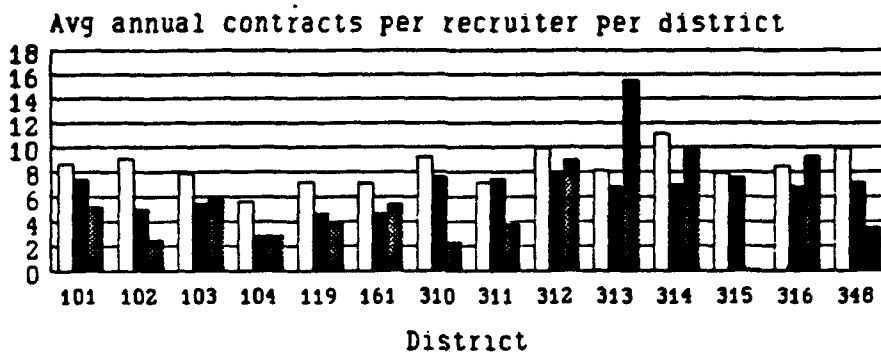
**NAVY RECRUITING AREA EIGHT: San Francisco, California  
West**

<u>District</u>	<u>Location</u>
836	Los Angeles, CA
837	Portland, OR
838	San Francisco, CA
839	Seattle, WA
840	San Diego, CA

**APPENDIX B: NRD PRODUCTIVITY BY ETHNICITY, GENDER AND INCENTIVE PROGRAM SAMPLES**

# White Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area One and Three

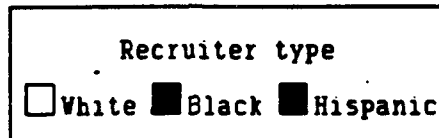
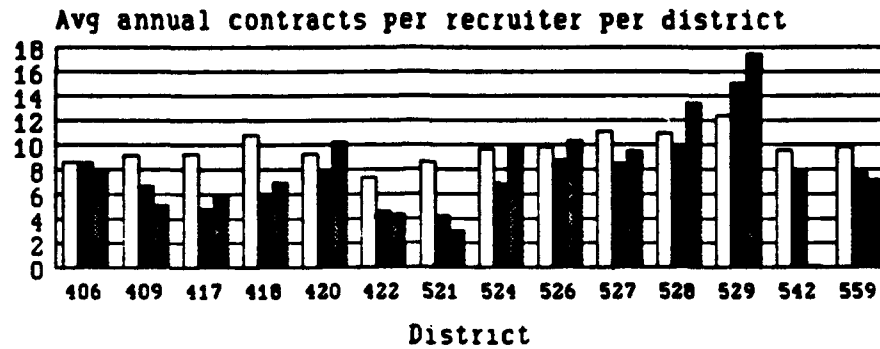


UMG = Upper Mental Group  
HSDG = High School Diploma Graduate  
Source: Compiled from CNRC files



# White Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area Four and Five



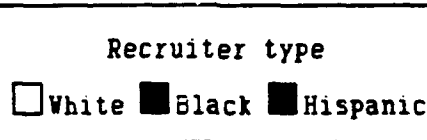
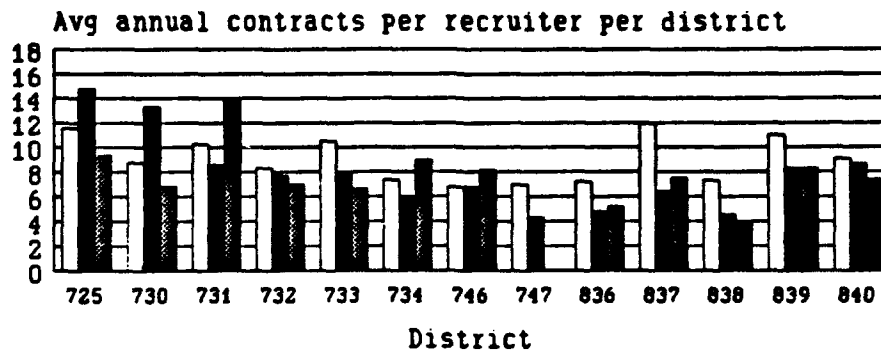
UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source: Compiled from CNRC files

# White Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area Seven and Eight



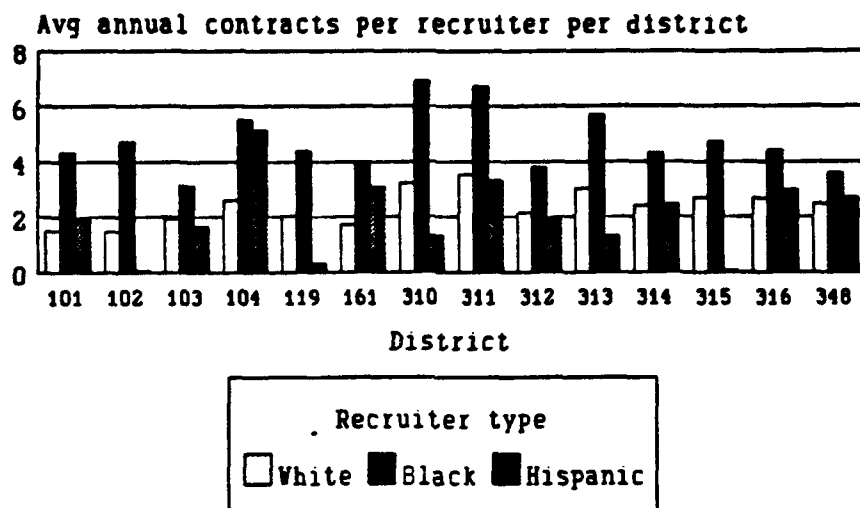
UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source: Compiled by author from CNRC files

# Black Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area One and Three



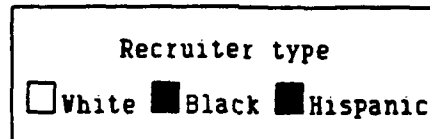
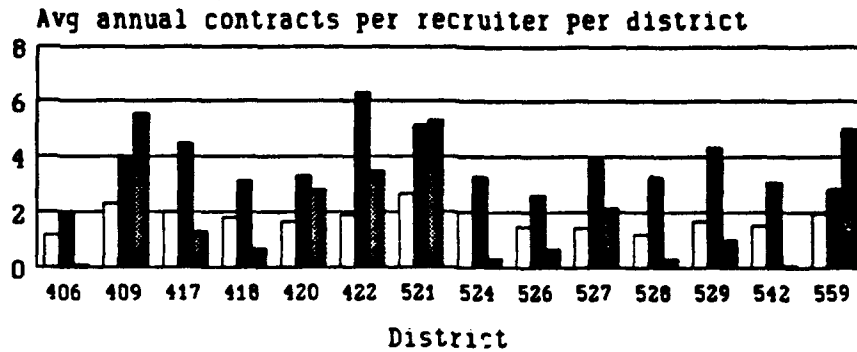
UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source: Compiled by author from CNRC files

# Black Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area Four and Five



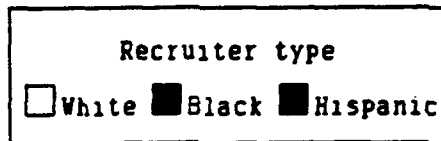
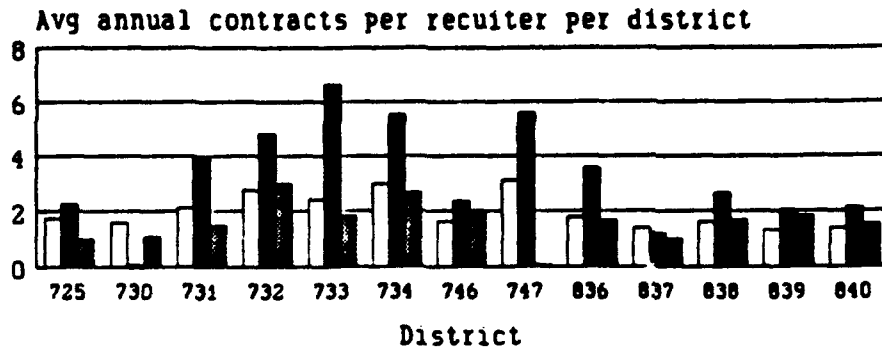
UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source: Compiled from CNRC files

# Black Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area Seven and Eight



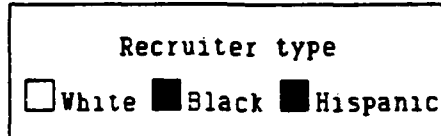
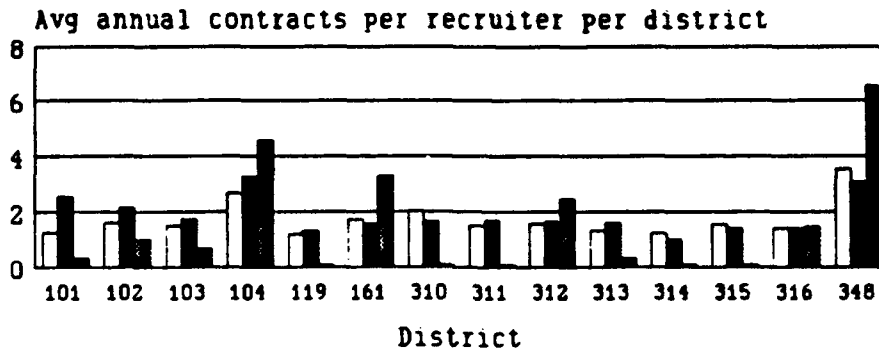
UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source: Compiled by author from CNRC files

# Hispanic Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area One and Three



UMG = Upper Mental Group

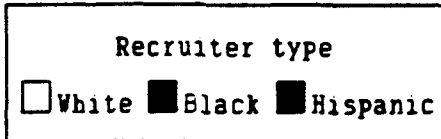
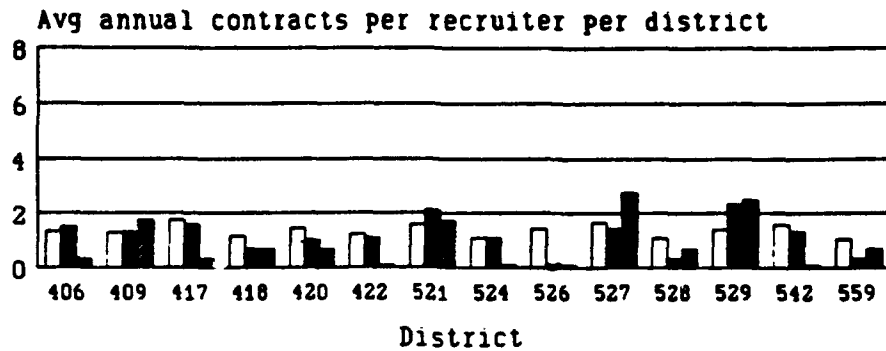
HSDG = High School Diploma Graduate

Source: Compiled from CNRC files

# Hispanic Recruits

FY88-FY90 UMG, HSDG and Seniors

Area Four and Five



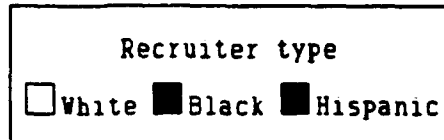
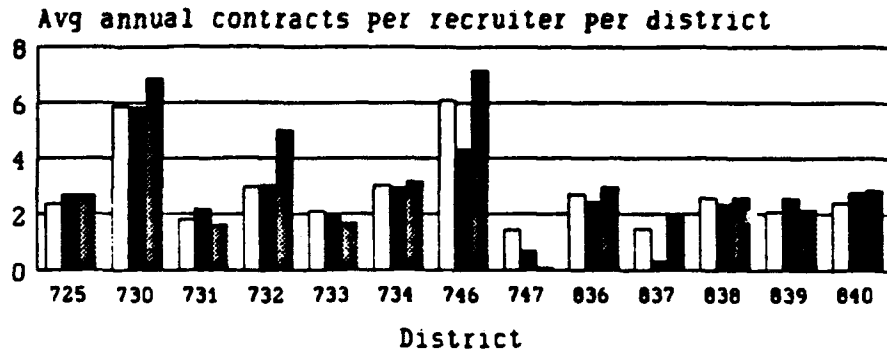
UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source Compiled from CNRC files

# Hispanic Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area Seven and Eight



UMG = Upper Mental Group

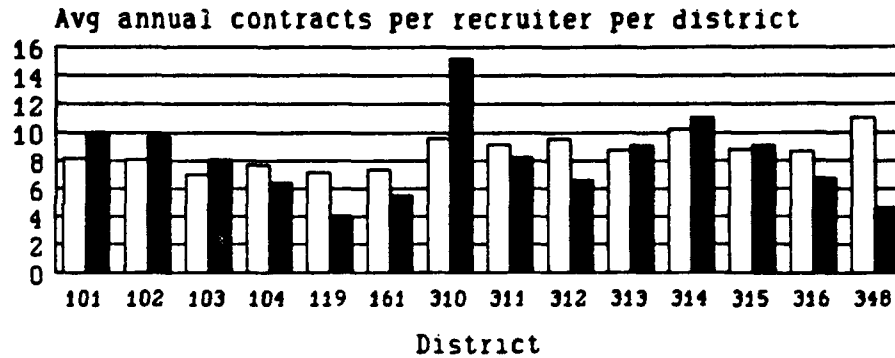
HSDG = High School Diploma Graduate

Source: Compiled by author from CNRC files



# Male Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area One and Three



Recruiter type  
 Male Female

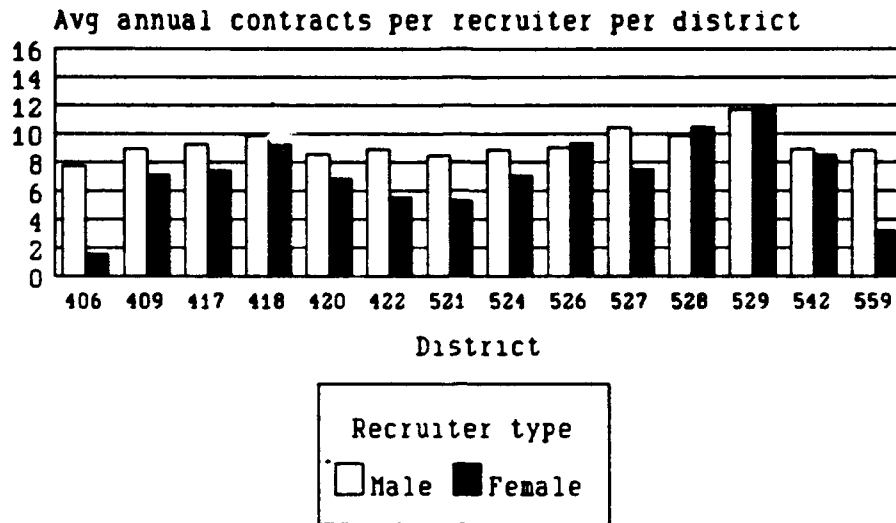
UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source: Compiled by author from CNRC files

# Male Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area Four and Five



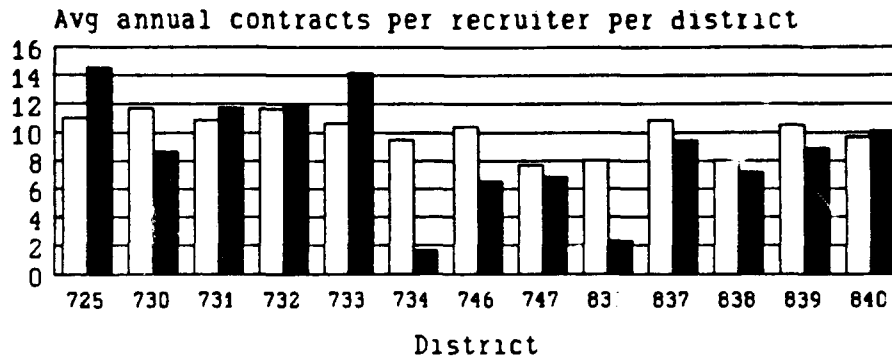
UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source: Compiled by author from CNRC files

# Male Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area Seven and Eight



Recruiter type  
☐ Male ☒ Female

UMG = Upper Mental Group

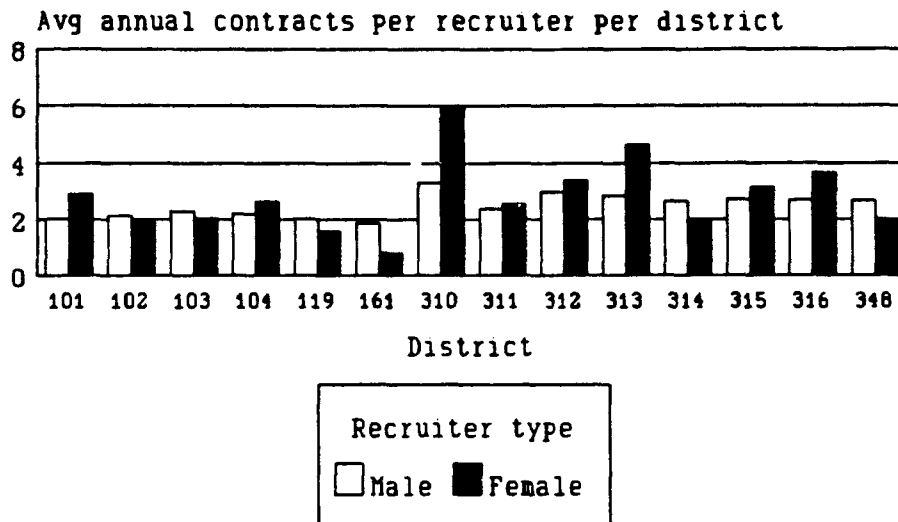
HSDG = High School Diploma Graduate

Source Compiled by author from CNRC files

# Female Recruits

## FY88-FY90 UMG, HSDG and Seniors

### Area One and Three



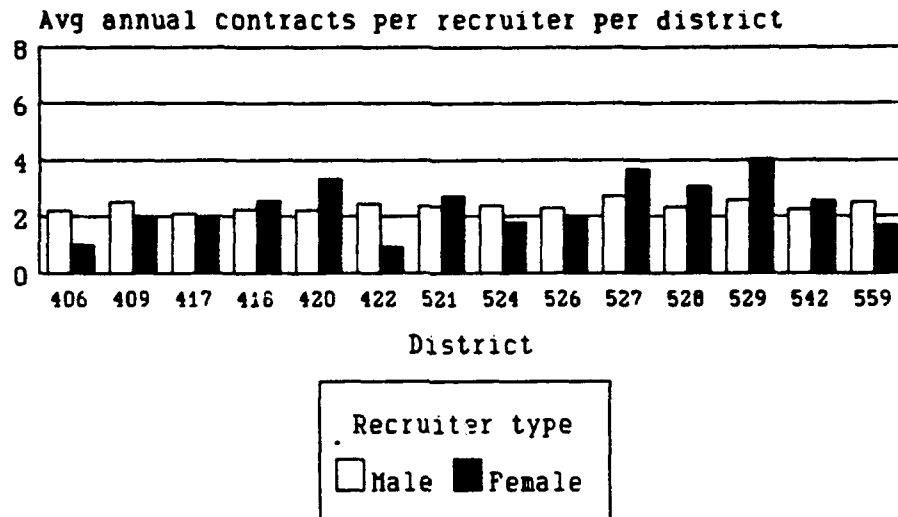
UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source: Compiled by author from CNRC files

# Female Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area Four and Five



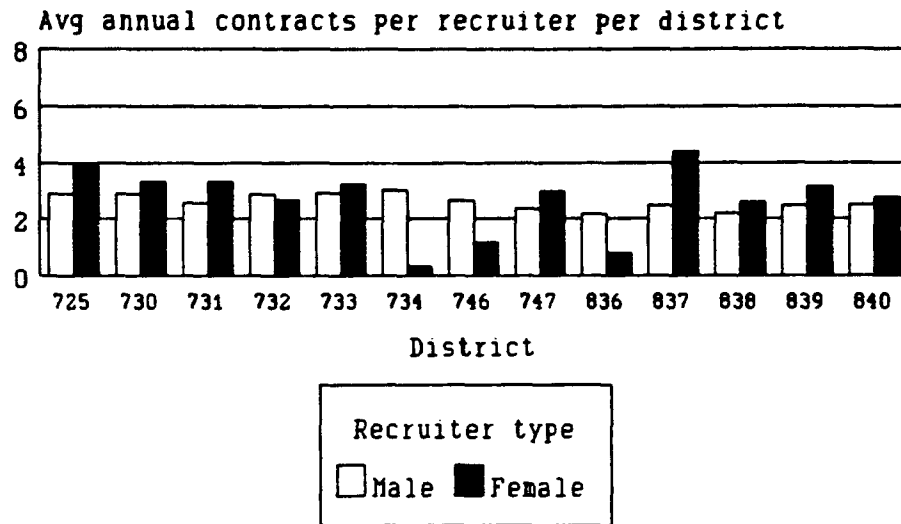
UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source: Compiled by author from CNRC files

# Female Recruits

FY88-FY90 UMG, HSDG and Seniors  
Area Seven and Eight



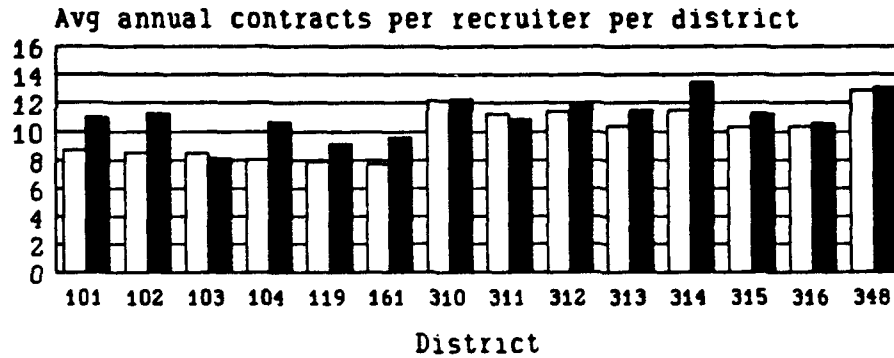
UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source. Compiled by author from CNRC files

# Incentive Programs

FY88-FY90 UMG, HSDG and Seniors  
Area One and Three



Incentive program  
□ Freeman Era ■ Post-Freeman Era

UMG = Upper Mental Group

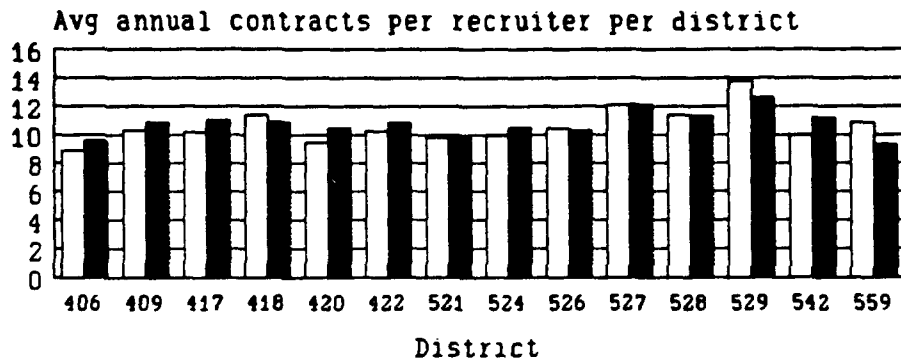
HSDG = High School Diploma Graduate

Source: Compiled by author from CNRC files

# Incentive Programs

FY88-FY90 UMG, HSDG and Seniors

Area Four and Five



Incentive program

□ Freeman Era    ■ Post-Freeman Era

UMG = Upper Mental Group

HSDG = High School Diploma Graduate

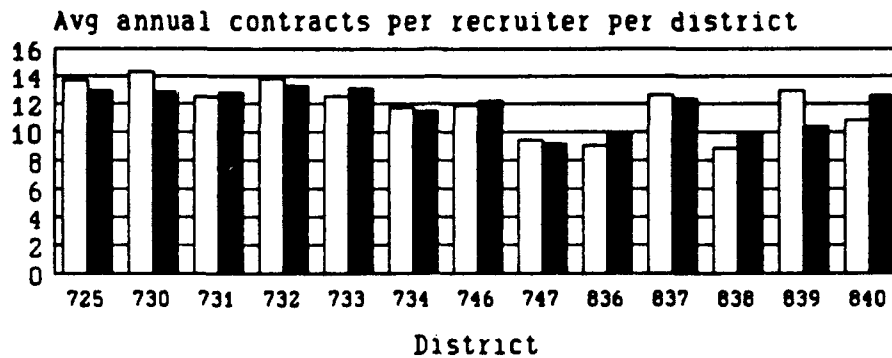
Source: Compiled by author from CNRC files



# Incentive Programs

## FY88-FY90 UMG, HSDG and Seniors

### Area Seven and Eight



Incentive program

□ Freeman Era    ■ Post-Freeman Era

UMG = Upper Mental Group

HSDG = High School Diploma Graduate

Source. Compiled by author from CNRC files

# APPENDIX C: NRD REGRESSION RESULTS BY ETHNICITY AND GENDER

WHITE SAMPLE: Omitted Condition - White, Male, NRD Dallas

Variable	Parameter Estimate	T for H0: Parameter=0
INTERCEPT	10.041333	28.774*
FEMALE RECRUITER	-0.266478	-0.924
BLACK RECRUITER	-1.948843	-12.140*
HISPANIC RECRUITER	-1.720625	-6.854*
ALBANY	-1.502356	-2.932**
BOSTON	-1.193720	-2.514**
BUFFALO	-2.188200	-4.634*
NEW YORK	-4.796722	-9.873*
PHILADELPHIA	-3.034403	-6.117*
NEW JERSEY	-3.026543	-5.616*
MONTGOMERY	-0.826249	-1.670
COLUMBIA	-2.400837	-4.654*
JACKSONVILLE	0.023739	0.053
ATLANTA	-1.587916	-3.160**
NASHVILLE	0.672872	1.353
RALEIGH	-1.766609	-3.781**
RICHMOND	-1.445011	-2.786**
MIAMI	-0.477929	-0.854
HARRISBURG	-1.259965	-2.591**
WASHINGTON, DC	-1.214298	-2.468**
CLEVELAND	-1.098624	-2.348**
COLUMBUS	0.447009	0.960
PITTSBURGH	-0.703954	-1.460
DETROIT	-2.819757	-6.503*
CHICAGO	-1.965165	-4.383*
ST LOUIS	-0.543889	-1.111
LOUISVILLE	-0.174213	-0.345
KANSAS CITY	0.889964	1.644
MINNEAPOLIS	0.953221	1.972**
OMAHA	2.635173	5.270*
INDIANAPOLIS	-0.467833	-0.921
MILWAUKEE	-0.331968	-0.645
DENVER	1.575805	3.161**
ALBUQUERQUE	-1.420185	-2.648**
HOUSTON	-0.357580	-0.696
LITTLE ROCK	0.323553	0.667
NEW ORLEANS	-2.624633	-5.343*
SAN ANTONIO	-2.929326	-5.417*
MEMPHIS	-3.278995	-6.382*
LOS ANGELES	-3.197713	-7.205*
PORTLAND	1.601797	3.450**
SAN FRANCISCO	-3.091598	-7.259*
SEATTLE	0.651066	1.401
SAN DIEGO	-0.784074	-1.755

\*Statistically significant at the .0001 level.

\*\*Statistically significant from the .0002 to .0500 level.

**BLACK SAMPLE: Omitted Condition - Black, Male, NRD Dallas**

Variable	Parameter Estimate	T for H0: Parameter=0
INTERCEPT	4.319873	22.248*
FEMALE RECRUITER	-0.081751	-0.498
WHITE RECRUITER	-2.130885	-28.706*
HISPANIC RECRUITER	-1.339972	-8.693*
ALBANY	-0.592980	-1.773
BOSTON	-0.732276	-1.941**
BUFFALO	-0.545772	-1.651
NEW YORK	0.902563	3.732**
PHILADELPHIA	-0.090384	-0.346
NEW JERSEY	-0.384506	-1.247
MONTGOMERY	1.485771	5.761*
COLUMBIA	1.644610	6.516*
JACKSONVILLE	-0.244347	-1.011
ATLANTA	1.054536	4.132*
NASHVILLE	0.112072	0.390
RALEIGH	0.482921	1.971**
RICHMOND	0.289493	1.092
MIAMI	0.001674	0.006
HARRISBURG	-1.425137	-3.737**
WASHINGTON, DC	0.143517	0.560
CLEVELAND	-0.122801	-0.445
COLUMBUS	-0.580654	-2.069**
PITTSBURGH	-0.713505	-2.278**
DETROIT	0.124067	0.494
CHICAGO	0.720280	2.945**
ST LOUIS	-0.338640	-1.125
LOUISVILLE	-0.910948	-2.840**
KANSAS CITY	-0.725830	-2.063**
MINNEAPOLIS	-1.008371	-2.389**
OMAHA	-0.649222	-1.721
INDIANAPOLIS	-0.741712	-2.225**
MILWAUKEE	-0.114444	-0.296
DENVER	-0.704502	-1.979**
ALBUQUERQUE	-0.803561	-2.224**
HOUSTON	0.545148	2.033**
LITTLE ROCK	0.507926	1.817
NEW ORLEANS	0.875163	3.546**
SAN ANTONIO	-0.762056	-2.203**
MEMPHIS	0.971631	3.787**
LOS ANGELES	-0.792071	-3.152**
PORTLAND	-1.392554	-3.380**
SAN FRANCISCO	-1.069619	-4.164*
SEATTLE	-1.179848	-3.400**
SAN DIEGO	-1.268127	-4.717*

\*Statistically significant at the .0001 level.

\*\*Statistically significant from the .0002 to .0500 level.

**HISPANIC SAMPLE:** Omitted Condition - Hispanic, Male,  
NRD Dallas

Variable	Parameter Estimate	T for H0: Parameter=0
INTERCEPT	2.960127	15.868*
FEMALE RECRUITER	0.056988	0.331
BLACK RECRUITER	0.488910	-3.652**
WHITE RECRUITER	0.480965	-4.309*
ALBANY	-1.021997	-2.816**
BOSTON	-0.798183	-2.338**
BUFFALO	-0.970443	-2.570**
NEW YORK	0.587387	2.742**
PHILADELPHIA	-1.213412	-3.721**
NEW JERSEY	-0.573047	-1.865
MONTGOMERY	-0.575132	-2.052**
COLUMBIA	-0.850385	-2.360**
JACKSONVILLE	-0.856656	-3.438**
ATLANTA	-1.071648	-3.230**
NASHVILLE	-1.294096	-3.744**
RALEIGH	-0.801521	-2.832**
RICHMOND	-1.082869	-3.308**
MIAMI	1.071030	4.325*
HARRISBURG	-1.193918	-3.020**
WASHINGTON, DC	-1.193933	-3.797*
CLEVELAND	-0.726013	-2.918**
COLUMBUS	-1.346327	-3.787**
PITTSBURGH	-1.016672	-2.140**
DETROIT	-1.283780	-5.086*
CHICAGO	-0.872513	-3.667**
ST LOUIS	-1.403210	-3.681**
LOUISVILLE	-1.101441	-2.202**
KANSAS CITY	-0.827820	-2.716**
MINNEAPOLIS	-1.445273	-3.392**
OMAHA	-1.027381	-2.870**
INDIANAPOLIS	-0.930574	-2.482**
MILWAUKEE	-1.471635	-3.531**
DENVER	-0.165166	-0.708
ALBUQUERQUE	3.345050	14.382*
HOUSTON	0.505517	2.140**
LITTLE ROCK	-0.376806	-1.483
NEW ORLEANS	0.638092	2.802**
SAN ANTONIO	3.482920	15.531*
MEMPHIS	-1.211433	-2.910**
LOS ANGELES	0.060105	0.297
PORTLAND	-1.053126	-3.903*
SAN FRANCISCO	-0.055911	-0.282
SEATTLE	-0.378339	-1.550
SAN DIEGO	-0.052226	-0.253

\*Statistically significant at the .0001 level.

\*\*Statistically significant from the .0002 to .0500 level.

**MALE SAMPLE: Omitted Condition - White, Male, NRD Dallas**

Variable	Parameter Estimate	T for H0: Parameter=0
INTERCEPT	10.324683	31.288*
FEMALE RECRUITER	-0.624039	-2.206**
BLACK RECRUITER	-0.182189	1.187
HISPANIC RECRUITER	-0.349319	-1.454
ALBANY	-2.202601	-4.404*
BOSTON	-2.262832	-4.913*
BUFFALO	-3.247332	-7.073*
NEW YORK	-2.602268	-5.812*
PHILADELPHIA	-3.195974	-6.726*
NEW JERSEY	-2.883765	-5.546*
MONTGOMERY	-0.469441	-0.982
COLUMBIA	-1.138083	-2.286**
JACKSONVILLE	-0.844869	-1.966**
ATLANTA	-1.525225	-3.154**
NASHVILLE	-0.112078	-0.231
RALEIGH	-1.463207	-3.234**
RICHMOND	-1.632452	-3.262**
MIAMI	0.680645	1.277
HARRISBURG	-2.633206	-5.575*
WASHINGTON, DC	-1.401674	-2.970**
CLEVELAND	-1.187066	-2.621**
COLUMBUS	-0.478973	-1.059
PITTSBURGH	-1.790107	-3.812*
DETROIT	-1.571630	-3.7909**
CHICAGO	-2.087783	-4.908*
ST LOUIS	-1.540658	-3.239**
LOUISVILLE	-1.340346	-2.720**
KANSAS CITY	-0.070559	-0.133
MINNEAPOLIS	-0.468219	-0.997
OMAHA	1.467835	3.009**
INDIANAPOLIS	-1.480478	-2.983**
MILWAUKEE	-1.620310	-3.239**
DENVER	1.003495	2.073**
ALBUQUERQUE	1.381875	2.677**
HOUSTON	1.114227	2.248**
LITTLE ROCK	0.351013	0.746
NEW ORLEANS	-0.927669	-1.973**
SAN ANTONIO	0.005366	0.011
MEMPHIS	-2.745885	-5.577*
LOS ANGELES	-2.254656	-5.363*
PORTLAND	0.431384	0.959
SAN FRANCISCO	-2.287880	-5.622*
SEATTLE	0.024568	0.055
SAN DIEGO	-0.509979	-1.186

\*Statistically significant at the .0001 level.

\*\*Statistically significant from the .0002 to .0500 level.

**FEMALE SAMPLE: Omitted Condition - White, Female, NRD Dallas**

Variable	Parameter Estimate	T for H0: Parameter=0
INTERCEPT	2.816554	20.965*
MALE RECRUITER	-0.416936	-4.706*
BLACK RECRUITER	0.362295	7.368*
HISPANIC RECRUITER	0.013430	0.166
ALBANY	-0.354069	-2.087**
BOSTON	-0.275989	-1.766
BUFFALO	-0.164765	-1.073
NEW YORK	-0.305194	-1.997**
PHILADELPHIA	-0.524436	-3.311**
NEW JERSEY	-0.605003	-3.328**
MONTGOMERY	0.956864	6.108*
COLUMBIA	0.249892	1.565
JACKSONVILLE	0.517754	3.718**
ATLANTA	0.326373	2.077**
NASHVILLE	0.172752	1.092
RALEIGH	0.225310	1.512
RICHMOND	0.170501	1.057
MIAMI	0.178429	1.034
HARRISBURG	-0.213996	-1.335
WASHINGTON, DC	-0.087757	-0.561
CLEVELAND	-0.359993	-2.397**
COLUMBUS	-0.184076	-1.223
PITTSBURGH	-0.243037	-1.557
DETROIT	0.007620	0.055
CHICAGO	-0.083021	-0.589
ST LOUIS	-0.086855	-0.551
LOUISVILLE	-0.166163	-1.027
KANSAS CITY	0.305917	1.768
MINNEAPOLIS	-0.060758	-0.389
OMAHA	0.228029	1.394
INDIANAPOLIS	-0.176949	-1.092
MILWAUKEE	0.090234	0.537
DENVER	0.523019	3.343**
ALBUQUERQUE	0.518221	3.082**
HOUSTON	0.274447	1.688
LITTLE ROCK	0.459216	2.987**
NEW ORLEANS	0.452130	2.975**
SAN ANTONIO	0.183752	1.097
MEMPHIS	-0.156072	-0.964
LOS ANGELES	-0.335441	-2.392**
PORTLAND	0.105506	0.703
SAN FRANCISCO	-0.245153	-1.785
SEATTLE	0.034715	0.233
SAN DIEGO	0.016391	0.117

\*Statistically significant at the .0001 level.

\*\*Statistically significant from the .0002 to .0500 level.

## APPENDIX D: BIVARIATE ANALYSIS RESULTS

### WHITE SAMPLE

#### Analysis of Variance Procedure

Alpha = .05      Confidence = 0.95      df = 349      MSE = 12.12672  
Critical Value of T = 1.96678

Race Comparison	Lower Confidence Limit	Diff Between Means	Upper Confidence Limit	
White - Hispanic	0.2593	1.1648	2.0702	*
White - Black	0.9277	1.8028	2.6780	*
Hispanic - White	-2.0702	-1.1648	-0.2593	*
Hispanic - Black	-0.2691	0.6380	1.5452	
Black - White	-2.6780	-1.8028	-0.9277	*
Black - Hispanic	-1.5452	-0.6380	0.2691	

\*Comparison significant at the 0.05 level.

### BLACK SAMPLE

#### Analysis of Variance Procedure

Alpha = 0.05    Confidence = 0.95    df = 330    MSE = 1.941196  
Critical Value of T = 1.96718

Race Comparison	Lower Confidence Level	Diff Between Means	Upper Confidence Level	
Black - Hispanic	1.1026	1.4843	1.8660	*
Black - White	1.6457	1.9981	2.3505	*
Hispanic - Black	-1.8660	-1.4843	-1.1026	*
Hispanic - White	0.1348	0.5138	0.8928	*
White - Black	-2.3505	-1.9981	-1.6457	*
White - Hispanic	-0.8928	-0.5138	-0.1348	*

\*Comparison significant at the 0.05 level.

### HISPANIC SAMPLE

#### Analysis of Variance Procedure

Alpha = 0.05    Confidence = 0.95    df = 303    MSE = 2.096756  
Critical Value of T = 1.96782

Race Comparison	Lower Confidence Limit	Diff Between Means	Upper Confidence Limit	
Hispanic - Black	0.4759	0.9060	1.3362	*
Hispanic - White	0.5889	1.0099	1.4309	*
Black - Hispanic	-1.3362	-0.9060	-0.4579	*
Black - White	-0.2700	0.1039	0.4778	
White - Hispanic	-1.4309	-1.0099	-0.5889	*
White - Black	-0.4778	-0.1039	0.2700	

\*Comparison significant at the 0.05 level.



### MALE SAMPLE

#### Analysis of Variance Procedure

Alpha = 0.05    df = 237    MSE = 9.219685  
Least Significant Difference = 0.7742

Gender	Mean
Male	9.2965
Female	8.5311

Means are not significantly different at the .05 level.

### FEMALE SAMPLE

#### Analysis of Variance Procedure

Alpha = 0.05    df = 232    MSE = 1.116787  
Least Significant Difference = 0.2726

Gender	Mean	
Male	2.4974	*
Female	2.9084	*

\*Significant difference between the means at the .05 level.

#### LIST OF REFERENCES

1. Skidmore, Mark, *Incentives for Recruiters*, Master's Thesis, Naval Postgraduate School, Monterey, California, September 1992.
2. Department of the Navy, COMNAVCRUITCOMNOTE 1133, 24 October 1988.
3. Cruz, Patricia, *A Preliminary Study of Navy Recruiters: Incentive Programs and Effects of Job-Related Stress*, Master's Thesis, Naval Postgraduate School, Monterey, California, December 1988.
4. Cooke, Timothy, *Individual Incentives in Navy Recruiting*, Center for Naval Analyses, Alexandria, Virginia, December 1986.
5. Department of the Navy, COMNAVCRUITCOMINST 1430.1A CH-2, 27 February 1992.
6. Department of the Navy, COMNAVCRUITCOMINST 1430.2B, 8 April 1992.
7. Telephone conversation between a Navy Recruiting Area Chief Recruiter and the author, 23 April 1993.
8. Edited by: Goodstadt, B.E., Sicilia, G.E., and Sinaiko, H.W. *Proceedings of the Joint Services Workshop on Recruiter Productivity*, conducted at the Naval Postgraduate School, 28 February-1 March 1983.
9. Cooke, Timothy and Lockman, Robert, *Indicators of Navy Recruiting Success: A Review of Recruiting Issues and Evidence*, Center for Naval Analyses, Alexandria, Virginia, May 1987.
10. Cooke, Timothy, *Geographic Variation in Recruiter Productivity: FY1984-1986*, Center for Naval Analyses, Alexandria, Virginia, February 1988.
11. Cooke, Timothy, *Recruiting Resources and Policies*, Center for Naval Analyses, Alexandria, Virginia. May 1988.
12. Asch, Beth, *Navy Recruiter Productivity and the Freeman Plan*, The Rand Corporation, Santa Monica, California, June 1990.

13. US Bureau of the Census, *Statistical Abstract of the United States*: 1988, (108th edition.) Washington, D.C. 1988.
14. US Bureau of the Census, *Statistical Abstract of the United States*: 1989, (109th edition.) Washington, D.C. 1989.
15. US Bureau of the Census, *Statistical Abstract of the United States*: 1990, (110th edition.) Washington, D.C. 1990.

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